VOL. XV.] *PUBLISHED MONTHLY AT THREE DOLLARS A YEAR.* *SINGLE COPIES, THIRTY CENTS.* [No. 7.

Copyright, 1893, by W. A. Conklin and R. S. Huidekoper.
Printed for the Editors by the E. SCOTT Co.

THE JOURNAL

OF

COMPARATIVE MEDICINE

AND

VETERINARY ARCHIVES.

PHILADELPHIA.

EDITED AND PUBLISHED BY

RUSH SHIPPEN HUIDEKOPER, M. D., Veterinarian, (Alfort),
W. A. CONKLIN, Ph.D., D. V. S.
W. HORACE HOSKINS, D. V. S. A. W. CLEMENT, D. V. S.

DECEMBER, 1894.

CONTENTS:

ORIGINAL ARTICLES: PAGE

The Effect of Age on the Organs of the Horse. By Prof. J. T. Duncan 437
The Value of Prophylactic Treatment in Anthrax. By John Faust, V. S. 440
Comparative Pathology. By J. Adami, M.A., M.D. 444
A Large Abdominal Hernia Successfully Treated. By E. E. Bittles, V.S. 447
A Few Abnormal Results following Dehorning Cattle. By Dr. J. D. Nichbert 449
Treatment of Ossific Diseases of the Joints by Hypodermic Injections. By J. H. Wattles, D.V.S. 450
The Diagnosis of Tuberculosis, Dealing Especially with the Dose of Tuberculin to be Used in Testing for Tuberculosis. By Prof. F. L. Russell, V.S. 453
Dislocation Between the Second and Third Cervical Vertebræ in a Horse, without any Paralysis. By A. W. Clement, V.S. 455
The Anatomy of the Large American Fluke (*Fasciola Magna*). By Charles Wardell Stiles, Ph.D. 457
Pennslyvania—Proposed Act to Establish "The State Live Stock Sanitary Commission of Pennslyvania" 463
Massachusetts—Prevention and Eradication of Bovine Tuberculosis 466
Massachusetts Regulations 469
The Veterinary Association of Manitoba 471

EDITORIAL:

JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES FOR 1895 473
Roads to Veterinary Education 472
Manitoba the Best 474

VETERINARY NEWS 475

COLLEGE NOTES 479

Ontario Veterinary College, Toronto, Canada 483
Obituary Notice. Prof. Thomas Walley 484

SOCIETY PROCEEDINGS:

Iowa State Veterinary Medical Association 485
Keystone Veterinary Medical Association 488
Illinois State Veterinary Medical Association 489
Proceedings of the Society for the Study of Comparative Psychology in Connection with the Faculty of Comparative Medicine and Veterinary Science of McGill University, Montreal, Canada 490

Index 503

All communications and payments should be addressed to

Dr. W. HORACE HOSKINS, 3452 Ludlow Street, Philadelphia, Pa.

Copies may be had in London of BAILLIERE, TINDALL & COX.

Now Ready.

Pathology and Therapeutics of Domestic Animals

BY

DR. FRIEDBERGER,

Professor of Veterinary Medicine in the
Royal Veterinary School at Munich.

AND

DR. FRÖHNER,

Professor of Veterinary Medicine in the
Royal Veterinary School at Berlin.

TRANSLATED FROM THE MOST RECENT EDITION
WITH ANNOTATIONS,

BY

PROF. W. L. ZUILL, M.D., D.V.S.,

Late Professor of Surgery and Obstetrics in the Veterinary Department of the University of Pennsylvania, Member of the Academy of Natural Sciences of Philadelphia, Member of the United States Veterinary Medical Association, Member of the Philadelphia County Medical Society.

TOGETHER WITH

THE NOTES OF THE FRENCH TRANSLATORS,

AND SELECTIONS FROM THOSE OF PROF. TRASBOT.

In Two Volumes of about 700 Pages each. Price, in Cloth, $6.00 per Vol., Net

FOR SALE BY ALL BOOKSELLERS.

Orders received by the Publisher, W. L. Zuill, M.D., D V.S., 857 North Broad St., Phila , or by the Printer, W. J Dornan, 100 North 7th St., Phila.

THE CHEMICAL TREATMENT FOR CONSUMPTION,

Asthma, Chronic Bronchitis, Tubercular Laryngitis and Catarrh

INSTITUTED BY W. R. AMICK, A.M., M.D., of CINCINNATI,

is supplied, to Physicians Only, by the exclusive Compounders,

THE AMICK CHEMICAL CO. 166 W. SEVENTH STREET,

Cincinnati, Ohio, U. S. A. It has been Tested, Endorsed and

ADOPTED BY THE MEDICAL PROFESSION OF ALL SCHOOLS

as the only Successful Treatment for Pulmonary Diseases.

TEST PACKAGES OF THE AMICK MEDICINES SENT FREE

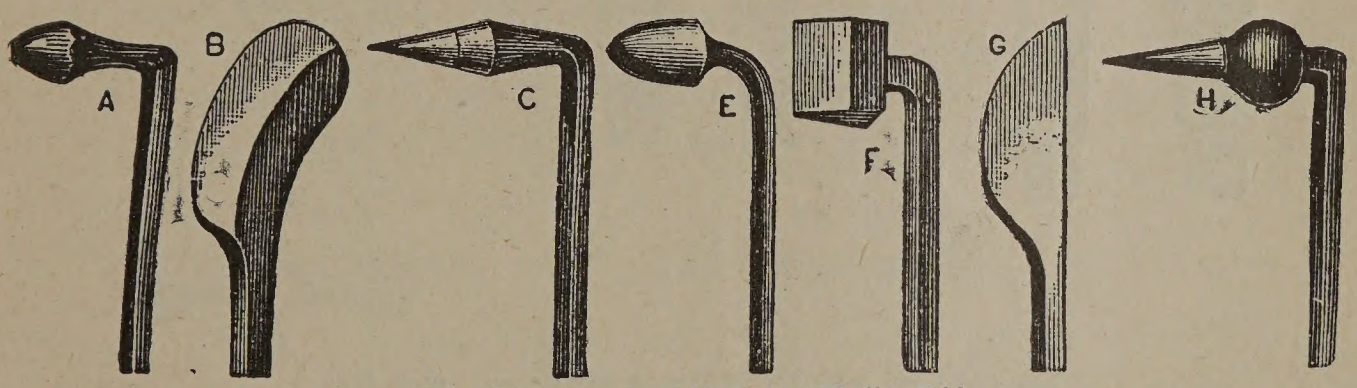
of cost to Physicians Everywhere for each new Patient.

DR. AMICK'S THEORY ON WHICH THE TREATMENT IS BASED

Cost of the Medicines and other Necessary Information on Request.

THE AMICK CHEMICAL CO.,
Manufacturing Chemists,
Cincinnati, O., U. S. A.

FIRING IRONS.



PRICE, 75 CENTS NET EACH.

JOHN REYNDERS & CO.

303 Fourth Avenue, NEW YORK.

VETERINARY INSTRUMENTS OF EVERY DESCRIPTION.

New Catalogue (5th edition), 80 pages and 500 illustrations, mailed free on application.

Bound Copies, 15 cents.

THE BERNS VETERINARY FOMENTATION PADS, adapted to any part of the body, taking place of Linseed Meal and other poultices, hot or cold.

SLINGS, for any size horse, $20.00. **Ropes and Pulleys** for same, $6.75 extra.
New circular, demonstrating above fully, on application.

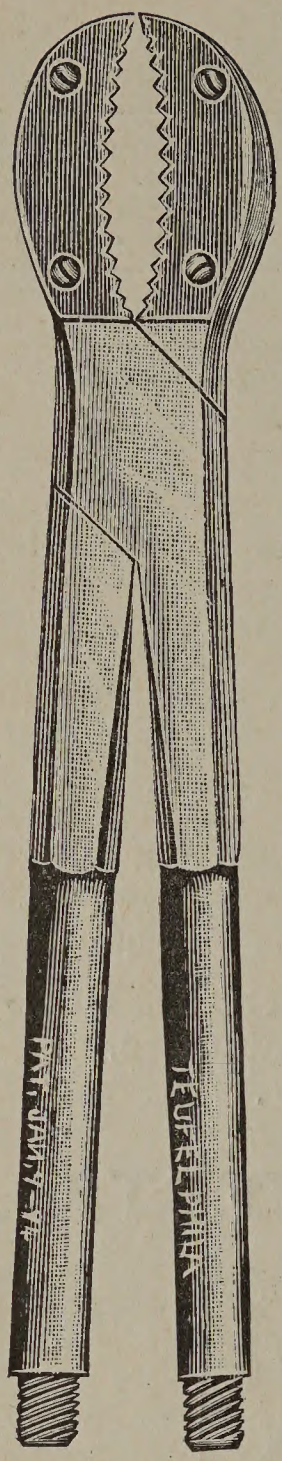
Specialties:

Dental and Castrating Outfits, Fever Thermometers and Hypodermic Syringes; **Green's Extension Bit,** or Mouth Speculum, new improved, $6.00 net.

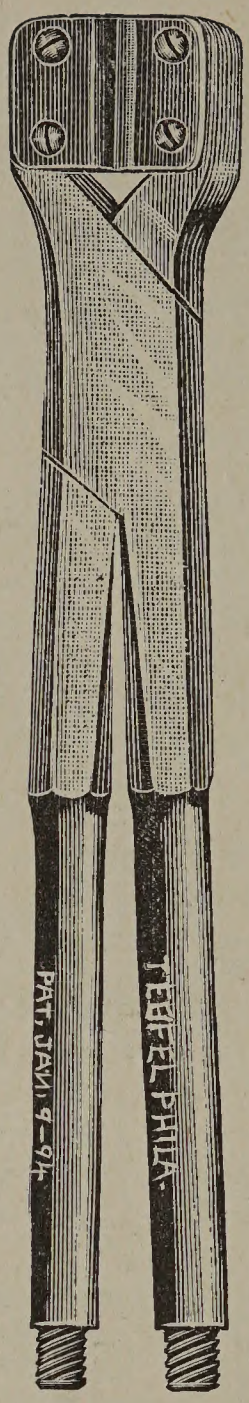
Hand Forged Rasps, Guarded Handles, solid, $2.25; Unscrewing, $3.50; Plain Handles, solid, $1.50; Unscrewing, $2.75.

Superior Floats, Handles solid, $2.00; Unscrewing, $2.75; Front Tooth Files, plain, 75c.; in Handle, $1.75.

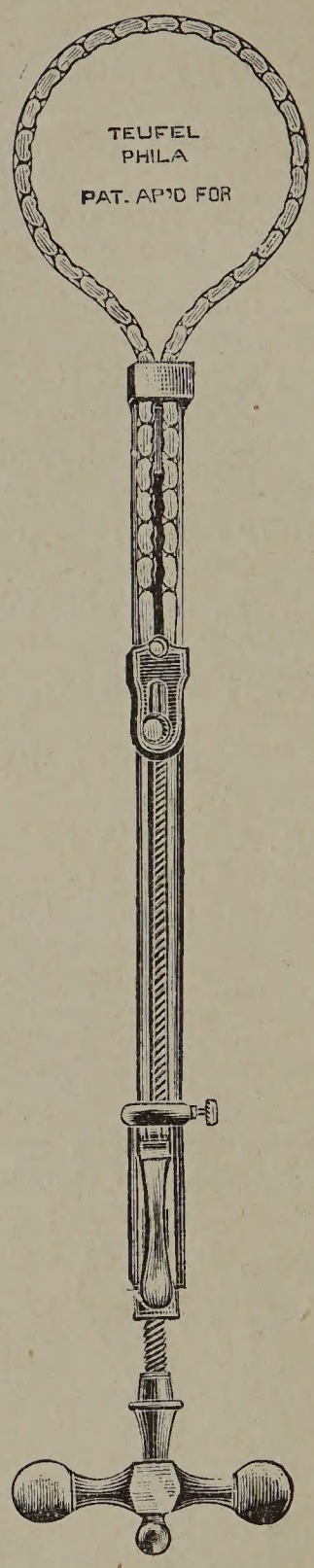
Instrument Makers to the Hospital Department of the American Veterinary College



Saw Tooth Molar Cutter, combined, $11.00.

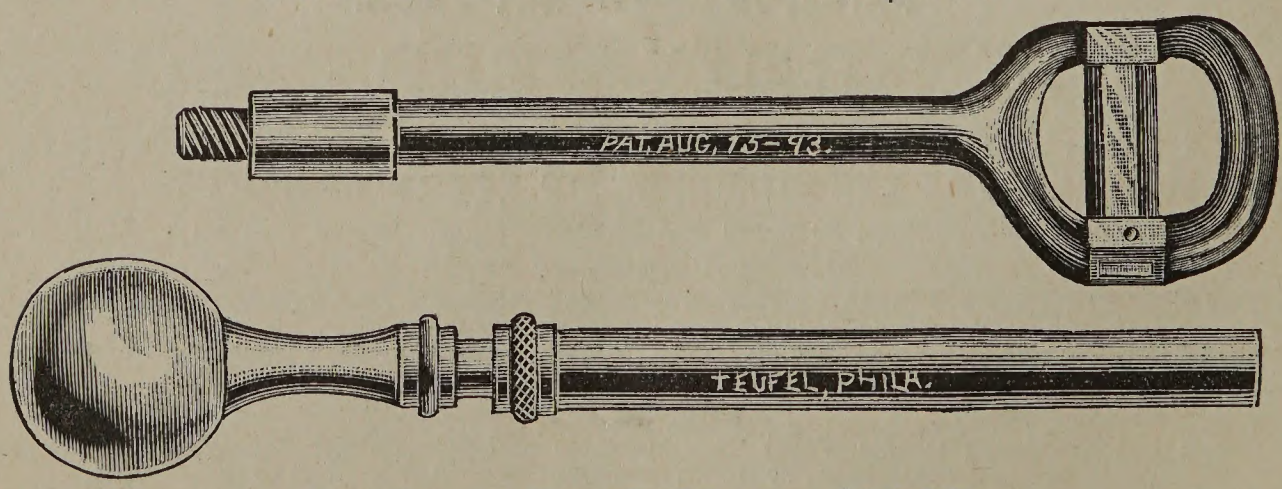


Perfect Molar Cutter, straight, $10.00.



Improved Slack Eraseur, $15.00.

Handles to fit the Cutters, $4.50.



Improved Tooth Plane, $10.00.

J. J. TEUFEL & BRO.,

Manufacturers of Surgical, Dental and Veterinary Instruments,

114 SOUTH TENTH STREET, Philadelphia.

McGILL UNIVERSITY.

FACULTY OF COMPARATIVE MEDICINE AND VETERINARY SCIENCE.

LATE
MONTREAL VETERINARY COLLEGE.

THE PRINCIPAL (*ex-officio*):
SIR W. DAWSON, C.M.G., LL.D., F.R.S.

PROFESSORS:

D. McEACHRAN, F.R.C.V.S. Edin., D.V.S., 176 University Street.
M. C. BAKER, D.V.S., 6 Union Avenue.
CHARLES McEACHRAN, D.V.S., 6 Union Avenue.

ASSOCIATE PROFESSORS:

G. F. GIRDWOOD, M.D., 54 Beaver Hall.
GEO. WILKINS, M.D., 896 Dorchester Street.
A. D. BLACKADER, B.A., M.D., 236 Mountain Street.
D. P. PENHALLOW, B.Sc., Sherbrooke Street.
WESLEY MILLS, M.A., M.D., D.V.S., McGill College.

DEAN:
D. McEACHRAN.

REGISTRAR:
CHAS. McEACHRAN.

SESSION 1893-94.

The Fourth Session of the Faculty (being the twenty-seventh of the Montreal Veterinary College) will be opened on Tuesday, the 3rd of October, 1892, by an introductory lecture, at 8 P. M., in the lecture room of the Faculty, No. 6 Union Avenue. The regular course of lectures will begin on Wednesday, 4th of October, at the hours named in the time-table, and will continue till the end of March.

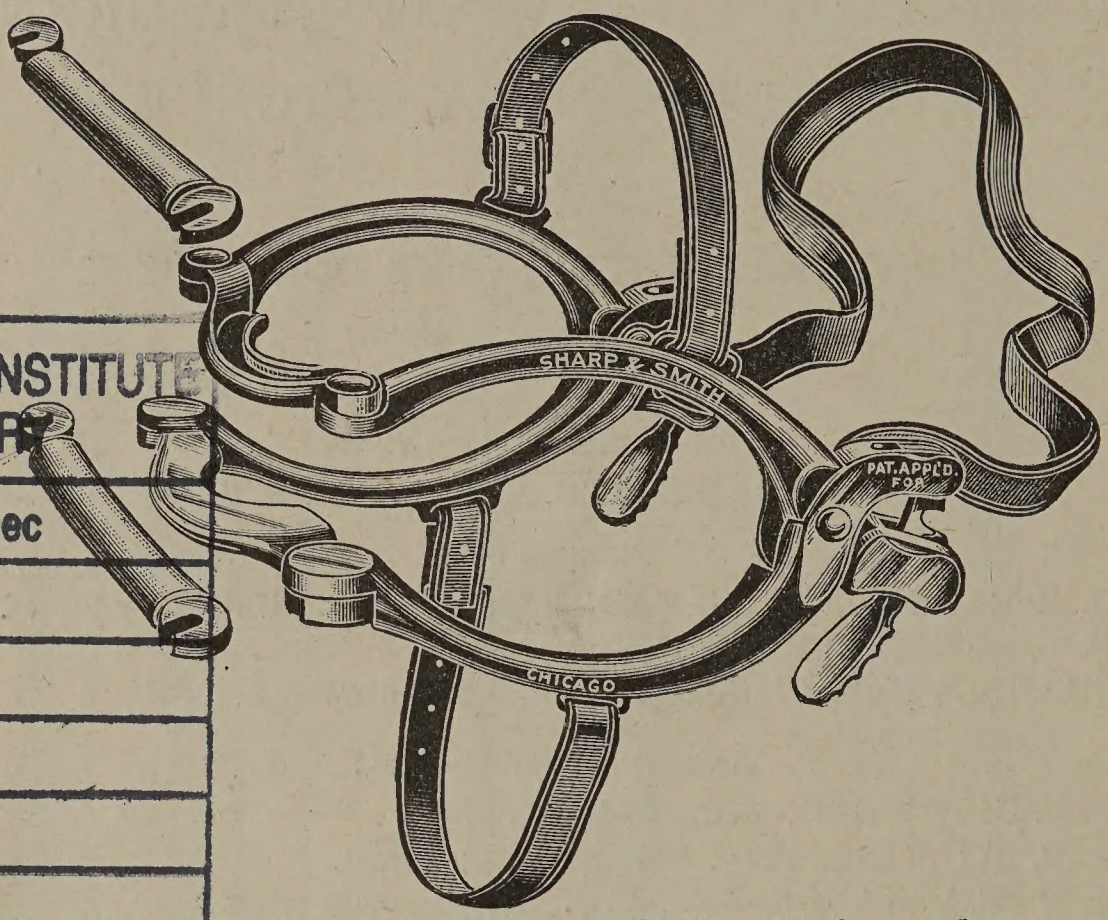
For Annual Calendar and full information, apply to

C. McEACHRAN, *Registrar*.

SHARP & SMITH,

Manufacturers of **VETERINARY INSTRUMENTS**

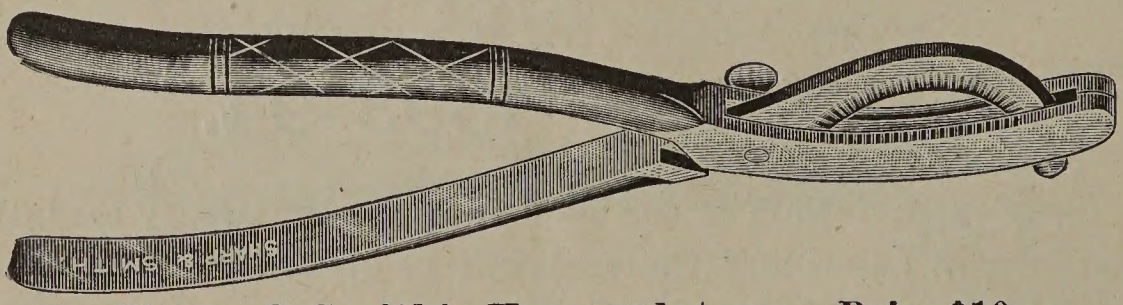
73 RANDOLPH STREET, CHICAGO.



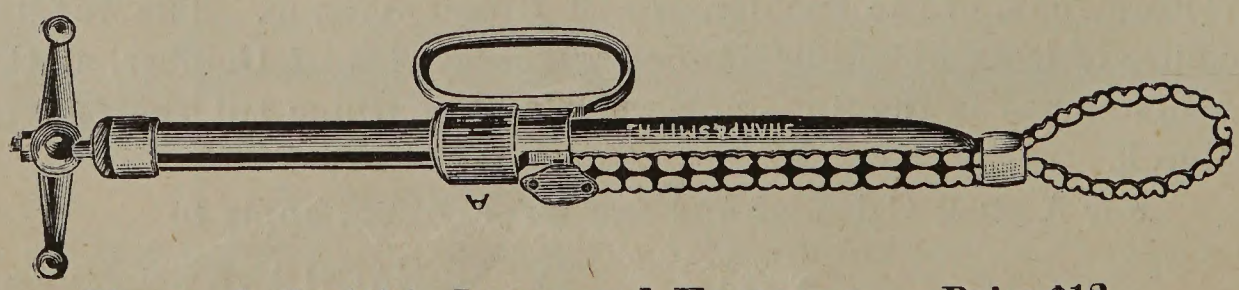
WELLCOME INSTITUTE LIBRARY
Coll. WelMOmec
Coll.
No.

Sharp & Smith's Improved Mouth Speculum.

The teeth fit into semi-lunar cups so made that they will fit any mouth, and when placed in the mouth like a bit, can be opened instantly. It is also provided with bars to take the place of the cups when operations are to be made on the incisor teeth. **Price $10.**



Sharp & Smith's Emasculator.——Price $10.



Sharp & Smith's Improved Ecraseur.——Price $12.

ONTARIO VETERINARY COLLEGE,

40, 42, 44 & 46 Temperance Street,
Near Bay Street, TORONTO.
ESTABLISHED 1862.

IN CONNECTION WITH THE COUNCIL OF THE

AGRICULTURE AND ARTS ASSOCIATION OF ONTARIO.

PATRONS:

His Excellency Lord Stanley of Preston, *Governor General.* Marquis of Landsdowne.
Marquis of Lorne. The Hon. Alexander Mackenzie. Lord Dufferin.
The Hon. J. J. C. Abbott, *Premier of Canada.* The Hon. John Carling, *Minister of Agriculture.*
Sir. Alexander Campbell, *Lieut.-Governor of Ontario.* The Hon. A. M. Ross.
The Hon. John Dryden, *Commissioner of Agriculture for Ontario.*

The Most Commodious and Complete Veterinary College in America.

SESSION BEGINS IN OCTOBER.

Apply to Principal, ANDREW SMITH, (V.S. Edin.), F.R.C.V.S. & H.A.R.C.V.S.

FEES, $60 PER SESSION.

COALTAR SAPONINÉ
(LE BEUF)

EMULSION OF COALTAR

FOR

Greasy Heels
Skin Diseases
Ulcers and
Wounds of
HORSES

Foot and
Mouth Disease
Sore Udders of
CATTLE

Foot Rot and
Erythema of
SHEEP

Mange, Eczema
Auricular
Catarrh and
Canker and all
Skin Diseases
and Sore Feet
of running
DOGS

An Emollient and
Antiseptic Dressing

of great purity which has been successfully used in the principal Hospitals of France in the treatment of abrasions, contusions, burns, gangrene ulcerations, suppurative wounds, skin diseases, inflammations of the mucous surfaces and wounds of every description. It is not only

A Succedaneum for Iodoform
and Carbolic Acid

or Bichloride Solutions, but is superior to them because it has no toxic action, is not irritating or caustic and has no offensive odor

Write for
"Coaltar Saponiné
—Le Beuf"

Jean L. Le Beuf

The inventor's signature is printed on each genuine package

Send for pamphlet to

E. FOUGERA & CO., NEW YORK

Sole Agents for the United States

Mention this Journal

Chicago Veterinary College

2537 and 2539 STATE STREET,

CHICAGO.

Organized and Incorporated under the Laws of the State of Illinois, 1883.

TRUSTEES.

R. J. WITHERS, - - - - - President.
A. A. BAKER, - - - - - Treasurer and Registrar.
JOSEPH HUGHES, - - - - Secretary.

FACULTY.

A. H. BAKER, V.S.,
Theory and Practice of Veterinary Medicine and Surgery

R. J. WITHERS, M.D., V.S.,
Materia Medica and Obstetrics.

JOSEPH HUGHES, M.R.C.V.S.,
Veterinary Anatomy, Lameness and Shoeing.

F. S. BILLINGS, V.S.,
General Pathology and Microscopic Anatomy.

E. E. READING, M.D.,
Physiology and Histology.

FINLEY ELLINGWOOD, M.D.,
Chemistry, Pharmacy and Toxicology.

C. E. SAYRE, D.V.S.,
Dental Surgery.

J. F. RYAN, V.S.,
Helminthology.

A. S. ALEXANDER, F.H.A.S.,
Hygiene, Breeding and General Management of Domestic Animals.

The extensive improvements in the building contemplated last year have been made, and further extension is now under consideration.

As it now stands, the building contains large lecture hall, museum, chemical laboratory, microscopical laboratory, dissecting room, pharmacy, hospital, operating room, etc., etc, These rooms are fitted up with the most modern appliances for aiding the acquirement of a thorough knowledge of Veterinary Science, are perfectly ventilated, and have abundance of light streaming in from all sides.

Everything to insure the comfort and convenience of students has been specially considered, and the large and varied clinical practice connected with the college renders it the most practical and complete institution of its kind on the continent.

For prospectus and further information write to the Secretary.

JOSEPH HUGHES, M.R.C.V.S.,

2537 and 2539 State Street, Chicago, Ill.

PLANTEN'S

For Oral and Rectal Medication.

Improved Empty Veterinary

CAPSULES

ORAL: ½, 1, 2, 3, 4, 8 and 12 drachms. RECTAL: 1½, 1, and ½ ounce.

TRIAL BOX BY MAIL, 25 CENTS.

CAPSULED HORSE BALLS. We make a specialty of putting up Private Formulas.
ESTABLISHED 1836.

H. PLANTEN & SON, 224 WILLIAM STREET, NEW YORK.

WILLIAM R. JENKINS,

851 & 853 Sixth Avenue,

N. W. Corner 48th Street, NEW YORK CITY.

Publisher and Importer of

VETERINARY BOOKS

And works treating on

HORSES, CATTLE,

SHEEP, SWINE,

AND DOGS.

Largest Stock in the United States.

Complete Revised Catalogue, including List of New Publications, sent on application.

C. M. MOSEMAN & BRO.

SOLE AGENTS FOR

ELLIMANS EMBROCATION,
COLES OSSIDINE,
MANHATTAN OINTMENT,
PERRINS LEG WASH,
STEVENS OINTMENT,
LT. JAMES BLISTER,
KITCHELLS LINIMENT,
QUINN OINTMENT,

All the Celebrated Preparations of W. Clark, of Oxford St., London,

AND ALL OTHER GOOD

Horse Remedies of English, French and American production.

EVERYTHING FOR YOUR HORSE—AND QUICK.

WAREROOMS, 128 CHAMBERS STREET, NEW YORK.

THE JOURNAL

OF

COMPARATIVE MEDICINE AND

VETERINARY ARCHIVES.

VOL. XV. DECEMBER, 1894. No. 7.

THE EFFECT OF AGE ON THE ORGANS OF THE HORSE.

BY J. T. DUNCAN,

Professor of Anatomy, Ontario Veterinary College, Toronto.

In the dissecting room of the Ontario Veterinary College it has been our custom for some time back carefully to weigh each seperate organ of every subject. A printed form is issued with spaces for entering such weights, as well as other particulars. As dissection proceeds the weights are entered in their proper spaces by the Secretary. When the subject is finished the filled in form is returned to the college and kept for future examination. At the close of the session the averages are made up. In this way we have the weights of the right and left lungs, heart, liver, spleen, pancreas, right and left kidneys and brain. By this plan not only are habits of exactitude fostered among the students, and the memory aided in regard to the weights of the organs, but we also have interesting data to compare with those given in the standard text-books.

I have only as yet made up the returns from a portion of the work of two sessions. The cases however have not been selected, they are consecutive, and up to date.

In order the better to compare our results with those from standard works I shall place them in parallel columns. Those in the first column are from that admirable French work (translated by Dr. G. Fleming), viz;—Chauveau's Comparative Anatomy of the Domesticated Animals. The column showing the number of subjects, and the last column of weights, are from the returns of the Ontario Veterinary College.

	CHAUVEAU.			O. V. COLLEGE.			
	lbs.	oz.	dr.	No. of Subjects.	lbs.	oz.	dr.
Heart,	6	12	..	89	7	3	..
Liver,	11	..	..	92	9	7	..
Spleen,	..	32	..	89	..	34	8
Pancreas,	..	17	..	78	..	14	12
Right Kidney,	..	27	..	87	..	24	8
Left Kidney,	..	25	..	86	..	22	4
Brain,	..	22	15	74	..	23	4

Chauveau's work gives no idea of the number of horses examined, but makes it clearly understood that the weights published are from healthy, middle sized, adult horses.

On the other hand it must be remembered that the returns from this College are from dissecting room subjects.

Horses sent to the dissecting room are as a rule aged animals. Chauveau's figures, then, are from full grown but not aged subjects. Ours, on the contrary, are from old and generally worn out animals. As to size ours were probably an average lot.

What effect upon the weight of the different organs would the discrepancy in age be likely to produce? Speaking generally it may be said that the organs atrophy with age. The heart is an exception to this rule. Figures from this college, then, should show all the organs to be lighter than those given in anatomical works, except the heart. Taking the organs seperately we have for consideration ;—

1. *The Heart.* This organ in the College series weighs seven ounces (nearly half a pound) heavier than Chauveau's figures give. This is not surprising as the tendency of the heart is not towards atrophy but rather to increase both in bulk and weight as age advances.

2. *Liver.* This gland at the second month of uterine life constitutes about one-half of the entire weight of the body, at

birth it is about 1 to 18, while in the adult it is not more than 1 to 40. These figures refer to the human being, but the discrepancy is even greater in the horse. In the adult horse the proportion is about 1 to 80 of the weight of the animal. These figures emphasize what has already been stated as a general law, viz., that age causes atrophy. By referring to our weights, it will be seen that the liver of the aged horse is 1 lb. 9 ozs. lighter than that of the adult.

3. *Spleen.* The tendency of this organ is very decidedly to atrophy with age, yet we find our figures show the spleen of the old animal to be 2½ ozs. heavier than that of the adult.

To explain this is not easy. It may be due to accident, thus, if one case of considerable hypertrophy were to be found among our subjects the average weight might be very materially increased.

But in looking over the returns, I find no such case. Out of the 89 cases tabulated, 8 weighed 3 lbs., and only 2 were as high as 3¾ lbs.

On the other hand, 8 weighed about 1½ lbs., 2 were 1¼ lbs., while the lowest weight recorded is 1 case which only weighed 1 lb.

Taking the average weight at 2 lbs. (32 ozs.), the variations noted above are not excessive, and would negative the idea that one or two hypertrophied spleens had vitiated the average.

4. *Pancreas.* This gland is known to atrophy greatly in many aged horses. The College figures show it to be nearly 2½ ozs. lighter in the aged than the adult.

5. *Kidneys.* In the old horse the right kidney weighs 2½ ozs., the left 2¾ ozs., less than in the adult. This would seem to be the result of age. And the atrophy evidently affects both to the same degree.

6. *Brain.* This organ almost more than any other shows the effect of age. I am not aware of any figures giving the proportionate loss in the horse, but the brain of man loses about one ounce in weight for every ten years after the age of forty. We would reasonably expect then to find the brain lighter in the subjects from which our figures are taken; instead of this, we find the aged brain to be heavier than that of the adult by about one-thlrd of an ounce. I shall not attempt any explanation of the figures.

Speaking generally our figures tend to confirm those of Chauveau, and also to illustrate the effect of age upon the various organs.

THE VALUE OF PROPHYLACTIC TREATMENT IN ANTHRAX.

By John Faust, V. S., Poughkeepsie, N. Y.

For twenty-nine years, to my personal knowledge, splenic apoplexy and splenic fever have occurred every year up to 1886, in a streak of swampy land about two miles long, and Mr. Noxon, one of the sufferers, says that he lost $30,000 worth of cattle in that period. All imaginable diseases were suspected by professional and non-professional gentlemen. I held post-mortems year after year, and always found one and the same thing—splenic fever, or apoplexy.

In the year 1885, the suspicion of poisoning was so strong that Mr. Nixon wanted a chemical analysis made of the stomach. As I knew that would have been money spent for nothing, I proposed that Professor Liantard make a post-mortem examination. After the post-mortem he stated to the owner that the whole cause was splenic fever.

A great many medicines were used with no effect. I advocated to the owners vaccination with anthrax virus. I even went so far as to offer to do it for nothing if it was a failure.

The following is a history of the different herds that came under my care in 1886:

On July 3d was called to a cow belonging to Mr. Hoppe. She died before I reached her. The second cow was found dead in the lot. On July 10th was called to the third cow, and put her under treatment for splenic fever (my record does not show what treatment). In twelve hours to all appearances she was well, but in ten hours more she died, and post mortem examination proved it to be splenic fever. The spleen weighed eight and one-half pounds.

Mr. Hoppe's neighbor also lost his only cow. They were the only cows these men owned.

On July 17th I was called to Mr. E. Lyon's farm. Ten days previous to my call he lost one Jersey cow. On July 16th the second cow was taken sick, to which Dr. Thompson was called, and diagnosed it as dysentery. The cow died shortly after he

left. On July 17th two more cows died without warning or medical care. The same day I found nine sick cows. My diagnosis was splenic fever. I was not prepared for any treatment that night. On the 18th I made a post-mortem on cows that died on the 17th, and found them to have had typical cases of splenic fever. I then separated the sick from the well.

The following is the symptoms and treatment of this herd:

RECORD.

July 18th, 10.30 A.M., No. 1, Tem. 107, very restless all night.
" " " 2, " 108.
" " " 3, " 106.
" " " 4, " 103½, restless, died at 5 P.M.
" " " 5, " 107½.
" " " 6, " 101¾, sinking, died at 7 P.M.
" " " 7, " 105¾, breathing very hard.
" " " 8, " 108.
" " " 9, " 104½.

The treatment in all these cases was Fld. Ext. Eucalyptus Glob., ½ oz. doses, and Arsenicum Album, 1–100, 2 dr. doses, alternating every two hours.

July 19th, 10.30 A.M., No. 1, Tem. 104¾, restless all night.
" " " 2, " 106½.
" " " 3, " 103.
" " " 5, " 106⅓.
" " " 7, " 102, breathing almost normal.
" " " 8, " 105.
" " " 9, " 101⅓.

The same treatment continued, they all ate, drank and ruminated some.

July 20th, 12 M., No. 1, Tem. 101, very little restlessness.
" " " 2, " 102½, very drowsy and stiff.
" " " 3, " 101.
" " " 5, " 102⅓.
" " " 7, " 101¼, breathing normal.
" " " 8, " 100¾.
" " " 9, " 101.

Continued same treatment every three hours.

July 21st, 3.30 P.M. Temperature of all the cows was normal. They all ate and drank well, and had a fair flow of milk. No medicine.

On July 25th, I inoculated 9 cows and 1 calf with Chauveau's virus, received from Professor Liantard. The following is the method of vaccination: Clip the hair on inside of thin part of the ear. Make a small incision with a sharp-pointed bistoury. Clean off the small quantity of blood, and inject with hypodermic syringe two drops of the virus.

On July 26th, cow No. 3 had a very alarming high temperature: at 11.30 A.M., temperature 107, and at 7 P.M., temperature 108. All the rest of the cows had a slight rise in temperature. On July 27th, cow No. 3's temperature was 102½, and to all appearances well.

The ears of all the cows, where the inoculation was made, swelled to more or less extent.

The following is a history of the herd of cattle owned by the Hudson River State Hospital. On the 27th of March, 1887, I was called to make post-mortem examination on a young cow which had died the night previous. Results: On removing skin, the tissues appeared to be filled with dark hemorrhagic spots; the spleen very much enlarged, and of a very dark color; the abdomen contained a quantity of dark serum; the kidneys were dark and ecchymosed. The statement was made by Dr. Cleveland that they had lost from 10 to 12 head every year, at different periods, in the same manner for a number of years.

I proposed the vaccination of the entire herd with Chauveau's virus, to which the doctors of the hospital agreed, and on the 31st day of March I vaccinated the entire herd of 44 head.

See the appended table of temperatures after vaccination.

Of those vaccinated, two died after a lapse of four years and four months of splenic apoplexy, fortunately in a place where no cattle have been kept since.

I also vaccinated the herd of Mrs. Wiley, consisting of 23 head, and Mr. J. Rose's herd of 16 head. There was no table of temperatures kept of these two herds.

Since 1887, there has been but two cases of splenic apoplexy (the two of the Hudson River State Hospital) in the whole district.

Every year for over thirty years this disease has claimed its victims.

This is certainly very gratifying for the use of prophylactic treatment of this disease.

No.	Temperature Before Injection.	Temperature After Injection.				
	March 31.	April 1.	Aplil 2.	April 3.	April 4.	April 5.
1	102	102	103	102	101 1-2	101
2	100	102 1-4	102	101 1-2	102	100 3-4
3	100	101 1-2	103 1-4	102	101 1-2	101
4	100 1-2	101	102	102	101	100 1-2
5	100 1-2	105 1-2	104	103	102 1-2	100
6	100 3-4	102 1-4	103	104 1-2	102 1-2	101
7	100	102	102 3-4	104 1-2	105	101 3-4
8	100	101	101	101	102	101
9	100	101	102 1-2	101 1-2	101	101
10	100	101 1-4	102 1-2	102	100 3-4	100
11	99 1-2	100 3-4	102	101 1-4	101	101
12	100	101 1-2	103 1-4	103 1-2	102	101 1-2
13	100 1-2	102	102	101 1-4	101 1-4	101
14	100	100 3-4	102	101	101	100 1-2
15	100 1-4	102 1-4	104	103	101 1-2	101
16	101	102	102 1-2	101	101	101 1-2
17	100 1-2	102	104	100 3-4	100 1-4	100
18	100 3-4	102	104 3-4	101 1-4	101	101
19	100	101 3-4	105	107	104 1-2	101 Ear swelled bad.
20	101	102	103 1-4	101 1-4	99 3-4	100
21	100	101 3-4	102 1-2	100 1-4	100 3-4	100
22	101	103	104	103	101	101
23	100 1-4	102	102 1-2	99 1-2	100 1-2	100
24	100	100 1-4	102	99 1-4	105 chill	101
25	100	102 1-2	103	100 1-4	100	100 1-2
26	100 1-2	102 1-4	103	101 1-4	100 1-2	100
27	101	103 3-4	103 1-4	103	100 1-4	101
28	100 1-2	101	102	101 1-4	101	101
29	99 1-4	101 1-2	102	100	101	100 1-2
30	100	101	102	101 1-2	99 1-2	100
31	100	101 1-2	102	101 1-4	101 1-4	101
32	100 1-2	102 1-4	102	100	101	100 1-2
33	100	103 3-4	102	103	102 1-2	100 3-4
34	101 1-2	103	100 3-4	102	103	101
35	100 1-4	102 3-4	102	101	100	100 1 4
36	100	102 1-2	103	100 1-2	100 1-2	100 1-2
37	100 3-4	103	102	101	100	100 1-2
38	101	102 1-2	104	102 1-2	101	100
39	101 1-4	103	102 1-2	101	101 1-2	101
40	100 1-2	103	101 3-4	100	101	100 1-2
41	101 1-2	104	102	101	100 1-2	100 3-4
42	101	103	102 1-2	101 3-4	100 3-4	101
43	100	103 1-2	105	103	101 1-2	100 1-4
44	100 1-2	102	104	102	100 3-4	100 1-2

COMPARATIVE PATHOLOGY.

REPORTS OF CASES.

By J. G. Adami, M.A., M.D.,

Professor of Pathology in McGill University. With Introductory Notes by Wesley Mills, M.D., D.V.S., Professor of Physiology and Lecturer on Cynology in the Faculty of Comparative Medicine and Veterinary Science in McGill University.

[Dr. Andrew Darling has published a report of the case to which the subsequent pathological examination detailed below refers, in the January number of this Journal.]

This gentleman, knowing my interest in all that relates to dogs more especially, handed over the specimens to me, believing them to be rare and valuable. I thought that I could serve the profession and pathology best by putting them into the hands of so competent an expert as Dr. Adami is known to be, and think the report he has made will be an endorsement of my course.

The theory of causation he gives seems to me in every way reasonable, and to be borne out, in a measure, by the history of the case.

Doubtless if regular autopsies were made in all cases, kidney disease among the lower animals, and especially in dogs, might not be found to be so rare as is commonly supposed.

Dr. Adami reports as follows:

In the month of March of this year, I received from Dr. Wesley Mills the kidneys of a dog, presenting to the naked eye the condition of chronic interstitial nephritis. At the time of receiving them I was very fully employed otherwise. Since then I have made examination of the organs by various methods, and the following description of this, which, I believe, is an unusual condition in the dog as in all the other domestic animals, may be of interest.

The two kidneys differ very considerably in size; the right is the larger, measuring 7.5 ctm. in length by 4.2 ctm. in breadth (of actual kidney substance in the middle of the organ, from internal to external surface) [3x1⅝ inches]. Similar measurements of the left kidney give 5.3 by 3.4 ctm., or 2½ and 1¼ inches respectively. The capsules of both are thick, but peeled off with greater

ease than had been expected, revealing a coarsely nodular surface. Both organs were firm on section, and presented somewhat dilated pelves, patent and extending longitudinally. The cortex varied greatly in thickness, in parts it appeared even broader than normal, in other alternating regions, corresponding to the depressions seen at the surface, it was almost entirely, if not quite atrophied. On the whole, the cortex of the right kidney was broader and less affected than that of the left. I do not give measurements, inasmuch as the canine kidney varies so greatly in dimensions, that such measurements would have but little meaning.

Portions of both kidneys were hardened in alcohol, cut both by the freezing and paraffin methods, and stained in various ways.

The sections obtained presented the appearance that is so well known in the chronic interstitial nephritis of man, that is to say, in the atrophic kidney of gout and other conditions, accompanied by arterio-sclerosis. There was found a chronic thickening of the arterial walls, with much fibrous development around the arteries leading to the cortex.

The cortical region itself presented shrunken, contracted areas, characterized by extreme development of fibrous tissue, and consequent atrophy of the tubules, alternating with areas, in which the tubules had become greatly distended, in fact almost cystic. There was a general fibrosis of the medulla of the kidney. Some of the tubules contained a small amount of uratic deposit, and in the pelvis of the left kidney, at the lower extremity, was a minute calculus. Both ureters had rather thickened walls.

In certain respects the appearances differed from what is usually seen in man. Thus, the distended tubules retained a well defined, single layer of flattened cells of renal epithelium; the basement membrane beneath this was peculiarly thickened, and, stained with hæmatoxylin, took the deep tint characteristic of calcareous infiltration. So, too, the areas of fibrous infiltration, or overgrowth, were richer in nuclei than is usual in the human gouty kidney. In general, however, the sections might easily be mistaken for those of an advanced condition of interstitial nephritis in man.

The condition of the ureters and pelves was not sufficiently advanced to render it certain that there had been any marked degree of obstruction to the flow of urine, either in the lower portions of the ureters or in the bladder.

That the dog should present this condition of cirrhosis of the kidney, or interstitial nephritis, is not surprising, when it is remembered that in man the condition is so frequently associated with

excessive nitrogenous diet, coupled with insufficient exercise, and that the dog is most liable to be subjected to these very influences. I have seen well marked cirrhosis of the kidneys in the pig, another animal resembling man and the dog in these respects.

Like man, the dog is liable to eczematous skin eruptions, associated, very probably, with unhealthy diet; the dog also is, I have found, the frequent subject of fibroid changes in the valves of the heart. I must, however, acknowledge that my opportunities for making necropsies on the dog have not been so frequent that I can recall other cases of vascular disturbance (and this condition of the kidney is closely associated with chronic arterial change). Possibly a slight amount of arterial thickening and interstitial nephritis is comparatively common. It would be interesting to learn the experiences of others in this respect.

The woodchuck "Arctomys Monax," referred to below, was in my possession for about two and one-half years. The specimen was under constant observation, as I was engaged in the study of hibernation in this and other animals. During the greater part of this period it seemed to be in perfect health. It was kept most of the time in my pigeon loft, which was comfortable at all times, and during all but the winter season was freely open. The animal itself was kept in a strong wire cage and fed upon stale bread, carrots, turnips, apples, etc.

As usual, in the spring it was low in flesh, poor in coat, and generally in low vital condition. However, beyond this, which is the condition of all the specimens I have kept in confinement, there was little to be observed. It was found dead in its cage on May 4 of the present year. Upon making an autopsy no signs of organic disease were discovered, except in the liver and in the omentum, into which there was extravasation of blood. Some of this had escaped and clotted just outside the peritoneum, so that hæmorrhage may have been the immediate cause of death. Professor Adami's detailed report follows.

The lobe of liver sent for examination (apparently the right lobe), has, upon its under surface, the distended gall bladder. To the outer side of this is situated a large mass, sharply defined from the rest of the liver tissue, whose length antero-posteriorly is 3.0 ctm., depth (from side to side) 1.8 ctm., and breadth (from below downwards) is 3.3 ctm., in the hardened specimen. This tumor occupies the extremity of the lobe, bulging very markedly on both surfaces of the lobe. It is covered by atrophied liver tissue, which it has displaced. On section the tissue of the tumor

is found firm, though not so firm as the normal liver tissue, and paler, with numerous greatly distended vessels and areas of hæmorrhage.

Upon microscopic examination, the centre of the growth is found almost entirely angiomatous, with here and there masses of cells of hepatic tissue type. These, in consequence of the hæmorrhage into the central area, fail to take the stain. Towards the periphery the growth assumes the character of an adenoma, being formed of cells resembling, on the whole, those of the liver, being occasionally the seat of fatty infiltrations, but on the other hand, presenting no lobular arrangement, and being smaller than normals.

Angiomata of the liver are relatively common, in fact, of all the internal organs, the liver is the most frequent seat of these vascular overgrowths. But this association of adenoma and angioma is more unusual, and I would rather not express a definite opinion about it until I have had the opportunity of examining sections prepared by several different methods.

A LARGE ABDOMINAL HERNIA SUCCESSFULLY TREATED.

By E. E. Bittles, V. S.

Thinking it might be of interest to some of my brother veterinarians, I relate the following case.

I was called about seven o'clock in the morning to see a valuable horse, owned by James Fosburg, of Union City, Pa. During the night, the horse had been kicking and got astride of a post, which was three inches by eight inches on the top and five feet high. When found in the morning, the animal was pawing and sweating, and seemed to be in severe pain. A hernia as large as a half bushel appeared in the left flank. The hair was rubbed off, and the integument was black and badly bruised. I told the owner I thought recovery doubtful, but he insisted upon my operating. I

led the horse out on the lawn, put the hobbles on, and cast him with his left side up, and washed the parts well with a solution of creoline, one to twenty. I then placed my hook knife, sutures, sponges, etc., in a solution of the same strength, and placed a strap around the left hock, so an assistant could roll him in any position that might be necessary. I then took a two bushel grain sack, and placed in it a sponge that I had saturated in two ounces of chloroform, and drew the sack over the horse's head, holding it close. In one minute he was thoroughly under the anæsthetic. I gave an assistant the sack, and told him when the horse began to wink, to pull the sack over his nose for a short time. I then took my hook knife and made an incision about twelve inches long over the hernia, just cutting through the integument, and with my finger I broke down a small quantity of cellular tissue coming onto the pelvic flexure of the great colon, which I returned. I then returned a number of feet of the small bowels and the floating colon. I saw I had a rupture of the abdominal muscles and tunic, commencing within about two inches of the Linea Alba, and extending about half way to the transverse processes of the Lumbar Vertebræ. Using a cat-gut suture, I commenced at the inferior part of the wound and stitched it over and over, taking good deep stitches about three-quarters of an inch apart. After using iodoform freely, I sutured the integument with interrupted sutures, and washed the outside wound with a solution of creoline and dusted with boracic acid. I left the hobbles on until he was entirely free from the influence of the anæsthetic, then let him up and placed him in a box stall, tying him so that he could not lie down. I did not allow him to have anything to eat, but gave him some water. The next morning I found him pawing for feed, wound quite badly swollen, pulse 52, temperature 102. Removed the two inferior stitches in the integument, allowing about a pint of serous fluid to escape. I injected the wound daily with a solution of creoline. For the first twelve days the pulse varied from forty-eight to sixty, and the temperature from 100.2 to 102. His daily food was eight quarts of scalded oats and four quarts of bran. At the end of twelve days began to feed some hay, and at the expiration of twenty-five days he was doing his regular driving.

A FEW ABNORMAL RESULTS FOLLOWING DEHORNING CATTLE.

By Dr. J. D. Nichbert,
Assistant State Veterinarian of Illinois.

CASE I.

Spotted steer, one year old, dehorned three months previous with saw. Emaciated, appetite fairly good, large swelling above right orbit extending across forehead, small sinus where horn was removed, which discharged a fetid pus. Diagnosis, abscess of frontal sinus. Cast and secured steer, operated by trephining above right orbit, found cavity filled with a mass of cheesy-like pus, which was removed by copious injection of warm water and lysol, 2 per cent. solution; ordered daily injections of same, which was continued for six days, when discharge almost entirely ceased, patient rapidly improved; injections discontinued after ten days, when opening closed, frontal bones gradually assumed normal shape, and steer made good recovery.

CASE II.

Red steer, three years old, weight about thirteen hundred pounds, being fed for market. First noticed by owner standing away from rest of herd, motionless head, turned to one side, apparently suffering intense pain; after lapse of twenty-four hours, steer in same condition, taking no nourishment, would move only when being driven about feed yard. Owner becoming alarmed, sent for me; upon making inquiry, ascertained that steer had been dehorned six months previously, and had apparently done as well as rest of herd after the operation, until forty-eight hours previous, when above symptoms were noticed. Caught and secured patient; upon examination found slight elevation of temperature, breathing accelerated, slight enlargement above left orbit, small opening where horn was removed. Diagnosis, same as Case I. As the owner would not consent to trephining, I enlarged opening where horn was sawed off, when about four ounces of serum and pus escaped, along with some particles of sawdust and hairs that had dropped into cavity when horn was removed. Thoroughly cleansed cavity with warm water and lysol, 2 per cent. solution, and released patient. Results: relief almost instantaneous, steer began eating in one hour; was sent to market in one week, although there was yet some discharge from opening.

CASE III.

Aged cow; roan; symptoms similar to Case II, only more marked; cow had stood with head turned to right, back arched, coat staring; had refused all feed for four days; very weak; hard, bony enlargement above left eye. Trephined sinus two inches above left eye. Copious discharge of pus and hairs, with some pieces of straw and dirt. Thoroughly cleansed cavity with 2 per cent. lysol solution. Cow began eating as soon as released; ordered daily injections into cavity, of warm water and lysol, as above. Results: good, rapid recovery.

As these are but few of the many such cases as have come under my observation since dehorning has become almost universal in this section, I came to the following conclusions: That in many instances there is too much of the tissues removed, or, in other words, there is too much of the bone removed with the horn, thus leaving a large opening, which, being left open by the operator, catches dirt and foreign substances before it closes, and as there is some itching during healing, the animal is inclined more or less to rub the head against straw or hay stacks, and thus get pieces of the same into the cavities. Where the sinus is large it should be plugged with oakum and tar, or some other medicant, and not be left open to admit cold air, dust and dirt, which create irritation, and ultimately lead to abscesses and death, if not relieved.

TREATMENT OF OSSIFIC DISEASES OF THE JOINTS BY HYPODERMIC INJECTIONS.*

By Junius H. Wattles, D.V.S.

While attending college as a student, the question of treating bone spavin by some other method than the actual cautery, was discussed by a gentleman who was visiting the college, and myself. We reasoned that many valuable animals were disfigured by the firing iron, and that if the same result could be obtained by some other method, it would be more satisfactory to both patron and practitioner.

The question to be answered was : Can a remedy or agent of any sort be injected into an articulation, that will produce an acute artificial inflammation, with the rapid deposit of bone cells neces-

* Read at the third regular meeting of the Missouri Valley Veterinary Association, at Atchison, Kan., December 12th, 1894.

sary to form an anchylosis, that will not cause suppuration, or some other complication or condition which will be worse than the original disease? The points in question were considered by us, with all of the misgivings and fear of ridicule that a student attending college and a gentleman in practice who had never attended any veterinary institution could have, as we felt that we were guilty of encroaching upon some of the traditions of the profession. The result was, however, that we determined to put in practice the theories which were evolved at that time, and I have done so with entire satisfaction to my patrons and myself.

The condition we know as spavin is, in my opinion, identical with the condition known as osteo-arthritis in man, and nearly the same general pathology occurs in both cases; the result desired, however, is not the same, as in man motion is usually insisted upon, even in cases where the articular cartilage is destroyed, to prevent anchylosis, while in our cases we desire complete anchylosis in as short a time as possible, with the exostosis reduced to a minimum.

Looking upon the process of repair that takes place in spavin as being identical with the process of repair that takes place in the repair of a fracture of bone, and that in both cases that absolute immobility is desired for the purpose of producing anchylosis, I have used plaster of Paris, or starch bandages, and by readjusting them as the swelling subsided or they become loose from any cause, reduced the motion in a joint very materially, a plan that I have followed with advantage in those cases where it was impossible to turn the animal out to grass, after operating.

It is necessary to give a brief resumé of the general pathology of osteo-arthritis in order that my reasons for treating spavin hypodermically may be made clearer.

There is, first the injury, whatever it may be, producing in regular order congestion and inflammation, followed by exudation into the articulation, with attendant maceration and destruction of the articular cartilages. If from any cause this exudate is not absorbed, a fibrous organization takes place, preventing the union of the necessary reparative bone cells, and delaying anchylosis, but should this exudate be rapidly absorbed, it will allow the bone cells to develop faster and accumulate in a much smaller space, and thus reduce the size of the exostosis that is formed, as well as making it a compact mass, instead of the irregular porous bone tumor, with its numerous openings and channels, in which this exudate has organized and become a part of, that we usually find in these cases.

Bone spavin, ringbone, and splint, have been treated by me since March, 1886, by the hypodermic injection of tincture of iodine. My method has been as follows: I confine the animal as required; clip away the hair and wash the part with hot water; use an ordinary syringe with a large needle, inserting the needle into the tumor, usually at its upper part, and loosening up the structures with its point, withdrawing the needle slightly, and injecting about one drachm of the tincture, making several insertions of the needle in different parts of the enlargement and injecting about a drachm at each insertion, taking care not to enter large blood vessels. The patient is kept in the stable for a week or ten days, and then turned out from six weeks to three months.

A second operation is very rarely necessary, and unless the swelling becomes excessive immediately after the operation, no after treatment of any sort is required. No bad results of any kind have ever followed this method of treating this class of diseases at my hands. Complete anchylosis and termination of the lameness, in both spavin and ringbone, has always been obtained. There has never been the slightest suppuration. The enlargement does not increase materially in size, but appears to decrease when repair is in progress, by the filling in below the enlargement with new tissue. I can cite individual cases, but it is unnecessary, as you have every opportunity to test its efficacy.

The stimulant and reabsorbent action of iodine is so well known that it requires but passing mention. The beneficial results obtained by the use of iodine, hypodermically, in the cases mentioned, is the result of both actions. By the stimulation of a low grade of inflammation into an active form, it determines the rapid increase and multiplication of the reparative bone cells, and by its reabsorbent action it resolves the organized exudate into a liquified mass that is readily taken up and carried away from the part. From a general, diffused inflammation of the region, it becomes a localized inflammation that is confined to the place desired.

I do not wish to be quoted as saying that *all* cases of spavin, ringbone, or splint, can be cured by this method, but I do assert positively, that any one of these which are curable, by any other method, may be cured quicker and with less deformity or blemish remaining, by the hypodermic injection of iodine, than any other method that I have any knowledge of.

THE DIAGNOSIS OF TUBERCULOSIS, DEALING ESPECIALLY WITH THE DOSE OF TUBERCULIN TO BE USED IN TESTING FOR TUBERCULOSIS.*

By F. L. Russell, V.S.,

Professor of Veterinary Science, Maine State Agricultural College, and Experiment Station, Orono, Me.

We find that most of those who have published their experience in the use of tuberculin, have used a much larger dose of the drug than we have found necessary, and we wish to bring the matter briefly to your attention in a comparison of results, as it is a matter of general interest and some importance.

In this country the available tuberculin is mostly from one of two sources. It is either that prepared in Germany by Dr. Libbertz, after Prof. Koch's formula, or that made in this country by the Bureau of Animal Industry, at Washington, D. C. This latter preparation is a dilute tuberculin of about one-tenth the strength of the imported drug. Whether the strength of either brand is uniform, depends upon the care and skill exercised in their manufacture, and we will assume that all reasonable care is used, as we have no convenient method of testing them. But we find that from .2 to .5cc. of tuberculin, for mature animals, is generally recommended, while our own experience with a dose of .05cc., or even .06cc., have been very satisfactory.

In the New Jersey State College herd, the first cow tested, and one tested at a later date, were given .5cc. of tuberculin each, thirty-five cows were given 15cc. of tuberculin, and three animals were left untested for want of material. In one case reported in Pennsylvania .25cc. was used, with negative results, although an autopsy proved the cow to be tuberculous, and the failure was attributed to the smallness of the dose.

The point I wish to make is that the large dose, quite generally used, has no advantage over a much smaller one, but, on the contrary, some evident disadvantages. If thirty or forty animals, as they will be found in a breeding herd of all ages, can be tested with 1cc. of tuberculin, with as good results as when the same amount is used for four or five, the matter of expense alone is worth con-

* A paper read before the Maine Veterinary Medical Association.

sidering. It is well also to bear in mind that the larger the dose the greater the possibility that well animals will react.

In June, 1892, when we first used tuberculin, we were uncertain about the dose proper, but finally decided to try .05cc., and tested a herd of five mature cows, of rather more than average size, giving that dose. To our great surprise, where we had only suspected one, four reacted decidedly to the test. This unexpected result led us to believe that we might have used too large a dose. So, before killing these animals we tested another herd of twelve cows, dividing them into two lots of six each. One lot we injected with .05cc. tuberculin to a cow, and the other lot with .025cc. Five of these twelve cows gave decided reaction, and the diagnosis in each case was verified by the autopsy. From the smaller dose the highest temperature obtained were 105.5, 105.1, in fourteen hours from the time of injection. From the larger dose 106.7, 103.8, 105.5 in fourteen, sixteen and eighteen hours. This trial tended to confirm our opinion that .05cc. of tuberculin is at least sufficient to test a mature animal for tuberculosis, and in subsequent tests we have not exceeded that amount, but have used from .05cc. to .015cc., according to the age and size of the animal tested.

In all we have had thirty-one animals react under the test. Autopsies were made in each case, and the diagnosis was uncertain in but two instances. Most of the animals were but slightly affected. Five or six of them would be considered advanced cases, and were readily diagnosed by a physical examination. Two of the thirty-one were calves that were injected with .015cc. of tuberculin each. The thirty-one animals together were injected with less than 1.4cc of tuberculin.

Now to make a general comparison of results with some of those who have used a much larger dose.

We find that the average maximum temperature in these thirty-one cases was 105.4, and the average number of hours after injection before the maximum temperature was reached was fifteen hours.

In the Wisconsin Experiment Station herd from .4cc. to .1cc. of tuberculin to an animal was used.

The average highest temperature of the twenty-one that reacted under the first test was 105.5, and the average time to the highest temperature was fifteen and a half hours.

The New Jersey State College herd was tested with an average dose for mature animals of .31cc.

The average highest temperature of twenty-five animals that reacted was 104.9, in an average time of sixteen hours. One cow, in an advanced stage of tuberculosis, was given .5cc., but failed to react.

In December, 1893, the Vermont Experiment Station herd was tested with from .2cc. to .3cc. to each mature animal.

Twenty-three animals reacted with an average highest temperature of 105.8 in sixteen hours.

I might go on adding to these figures the record of other herds, but perhaps this is sufficient to show that the reaction is as decisive and as quickly obtained with a small as with a large dose of tuberculin.

DISLOCATION BETWEEN THE SECOND AND THIRD CERVICAL VERTEBRÆ IN A HORSE, WITHOUT ANY PARALYSIS.

By A. W. Clement, V.S., Baltimore.

A bay three-quarter thoroughbred gelding fell in jumping a fence in the hunting field, landing on his knees and at the same time striking his head and twisting his neck. The horse got up immediately and he was ridden home. The rider says that he persisted in carrying his head low but went along all right. He did not attempt to make him trot.

It was some three weeks after the accident occurred before I saw the case. The conditions then presented were as follows: The crown of the occiput was in a straight line from the withers or most prominent superior spinous processes of the dorsal vertebræ. There was a convex deviation from the straight line on the right side of about two inches, extending over the second and third cervical vertebræ and a corresponding concavity on the left side. The point of the nose and mouth was carried to the

right of a straight line through the face about one and one-half inches. The head could be moved laterally on the neck about eighteen inches and up and down about as usual. The animal could turn his body to the left as well as ever but was somewhat awkward in turning to the right. The end of the third vertebræ could be distinctly felt jutting out beyond or to the side of the second vertebræ. The animal was given me for experimentation, and it was determined to operate, though with no hope of success, as adhesive inflammation had gone so far as to preclude any chance of reduction, even were such a thing possible at first. However, the animal was cast, chloroformed, and extreme extension with great pressure tried without any success. The second and third vertebræ were then completely exposed along the greater curvature of the dislocation. It was found there was fracture of the side of body of the vertebræ as well as dislocation, so that the pieces of bone could be pressed with the finger. It was then decided that any further efforts at operating would be useless and probably destroy the appearance of the specimen for anatomical purposes. I decided to close up the wound and allow the animal to live for a while for purposes of observation. This was done and the animal is now doing duty at light driving in the country near here. Later on the animal will be destroyed and the specimen exhibited to the medical profession. Several physicians have already seen the case and any who may be interested are quite welcome to examine the animal and to attend the autopsy, due notice of which, should the editor desire, will be given in this journal. *Maryland Medical Journal, Vol. XXXI. No. 17.*

THE ANATOMY OF THE LARGE AMERICAN FLUKE (*FASCIOLA MAGNA*), AND A COMPARISON WITH OTHER SPECIES OF THE GENUS FASCIOLA, S.ST.

By Chas. Wardell Stiles, Ph.D.,

Zoölogist, Bureau of Animal Industry.

CONTAINING ALSO A LIST OF THE CHIEF EPIZOÖTICS OF FASCIOLIASIS (DISTOMATOSIS) AND A BIBLIOGRAPHY OF *FASCIOLA HEPATICA*.

By Albert Hassall, M.R.C.V.S.

(Continued from page 417.)

Bibliography of F. hepatica.

BY ALBERT HASSALL.

Lutz, A.—
'92.—Zur Lebensgeschichte des Distoma hepaticum ; C. f. B. u. P. XI. No. 25, pp. 783-796.—Rev. in Naturwissenschaftliche Rundschau No. 34 VII. Jahr. 1892, pp. 436-437. (Korschelt.)—Ref. von Lüpke, Rep. der Thierheilk. 10 Heft. Archiv. f. animalische Nahrungsmittelkunde. No. 2, VII. pp. 24-25.
'93.—Weiters zur Lebensgeschichte des Distoma hepaticum; C. f. B. u. P. XIII. No. 10. pp. 320-328.

Lydtin —
('90.)—Ueber die Distomatosis der Haussäug.; Archiv. f. wiss. u. prakt. Thierheilk., xvi, p. 372.

Macé, E.—
('82.)—Recherches anatomiques sur la grande douve du foie (Distoma hepaticum), Paris.

Mackh —
('89.)—Leberegel in der Lunge einer Kuh ; Repert. d. Thierheilk., p. 308.

Mangin —
('32.)—Mém. sur la cachexie aqueuse (pourriture) des bêtes à grosses cornes ; Rec. de Méd. Vétér. Prat. p. 420.

Marshall, J. T.—
('83.)—On a parasite of Limnea truncatula ; Journ. of Conchology. IV. p. 10.

MARSHALL & HURST —
'87.—The Liver fluke of the Sheep; A Junior Course of Practical Zoology. Lond., pp. 25-35. figs. 6-12.
MÉGNIN, P.—
('82.)—Tubercules des poumons chez une Vache causés par des Douves (*Distoma hepaticum*); Comp. rend. de la Soc. de Biol., p. 221.
MEHLIS, Carl. Fr. Ludov.
('25.)—Observationes anatomicæ de Distomate hepatico et lanceolato ad Entozoorum humani Corporis historiam naturalem illustrandum. Acced. tab. aen. color I. Fol. Maj. Gottingæ.
MINOT, C. S.—
('84.)—The Life history of the distoma hepaticum· Boston Med. & Surg. Journ. CX. 418.
MIRAM —
('40.)—Bull. de la Soc. Imp. des Natural. de Moscow, p. 157.
MOJKOWSKI —
('88.)—Przeglad Weterinarsky.
('88.)—Œsterr. Monat. f. Thierheilk. p. 118.
MOLIN —
('59.)—Wiener Sitz. XXXVII. p. 827.
MOROT, CH.—
('87.)—Études statistiques sur la distomatose pulmonaire des Bovidés; Bull. Soc. centr. de Méd. Vétér., p. 38 et 64.
('90.)—Concrétion bronchique volumineuse due à la présence d'une douve dans le Poumon gauche d'une Vache; Bull. d. l Soc. Cent. de Méd. Vét. pp. 407-408.
MORTON, W. J. T.—
'39.—On the Entozoa affecting domesticated animals, and particularly on *F. hepatica*, or Liver Fluke in Sheep; Veterinarian, Vol. XII. pp. 735-738.
MOULINIÉ, J. J.—
('55.)—De la reproduction chez les Trematodes endo-parasites; Mém. de l'institut Genevoise III.
MURRAY, A. J.—
'32.—*Distoma hepaticum*, infesting lungs of cattle; Am. Vet. Rev., p. 100.
NEUMANN, L. G.—
'88.—Traité des Maladies parasitaires, &c. Paris. p. 507-564. fig. 229-238.
'92.—2d Edit. pp. 504-528, figs. 271-281. Paris.
'92.—Translation by Fleming, pp. 517-543, figs. 271-281. London.
OGANESYANTZ, G. Y.—
('73-'74.)—Dvurom pechenochnii v' Alexandropolskom uaizdai (*Distoma hepaticum* in the district of Alexandropolis); Protok. zasaid. Kavkazsk. Med. Obsh., Tiflis. X 205.
OKEN —
'35.—*D. Hepaticum;* Allgem. Naturg. f. alle Stände. Stuttgart, pp. 550-551. Vol. II.
OLFERS —
('16.)—*Distoma hepaticum;* Commen. d. Veget. et anim. Corp. Berl. t. I. p. 4.
OLSSON, P.—
('76.)—Skandinav. Helminthfauna, p. 13.

Otto, A. W.—
('16.)—Ueber das Nervensystem der Eingeweidewürmer; Mag. d. Gesells. naturf. Fr. zu Berlin. VII.

Owen, R.—
'43.—Distoma hepaticum ; Lectures on the Comp. Anat. & Phys. of the inv. Animals. London, p. 56, fig. 27.
'55.—2d Edit. p. 80-81, fig. 36.

Parona—
'87.—Annali Museo Civico. Genova, p. 489.

Perroncito, E.—
('81.)—L'anemia dei contadini, fornaciai e minatori in rapporto coll' attuale epidemia negli operai del Gottardo ; Annali d. R. Accad. d'agric. di Torino XXIII.
('84.)—Action du chlorure de sodium sur les Cercaires et de leur desséchment ; Arch. ital. d. Biol. VI. p. 154.
('85.)—Réc. de Méd. Vétér. p. 208.
'86.—*Distoma hepaticum ;* Trattato Teorico-pratico sulle malattie più comuni degli Animali Domestici. Torino. p. 247-249. fig. 95-99.
('87.)—Il medico veterinario. p. 97.

Piana, G. P.—
('82.)—Le cercarie nei Molluschi studiate in rapporto colla presenza del Distoma epatico e del Distoma lanceolata nel fegato dei Ruminanti domestici ; La clinica Veter. V.

Prunac, A.—
('78.)—De la douve ou distome hépatique chez l'homme ; Gaz. d. hôp, Paris, 1147-1149.
('79.)—Ann. Soc. d. Méd. d. Lyon, 2. s., XXVII, 99-109.
('84)—Note sur la grande Douve du foie (*Distoma hepaticum*) Montpellier et Paris, in 8°. de 14 p.

Railliet, A. et Morot—
('85.)—*Distomum hepaticum;* Bull. Soc. Cent. de Méd. Vét. p. 285.

Raillist—
'86.—*Distoma hepaticum ;* Éléments de Zoologie medicale et agricole Paris. p. 286 293. fig. 180-189.
'87.—Distomatose du Lapin domestique ; Bull. d. l. Soc. Centr. de Méd. Vét. p. 324.
('90.)—Bull. Soc. Zool. d. France. XV. p. 88.
('93-'94)—Traité d. Zool. méd. et agric.

Ramdohr, K. A —
('14.)—Anat. Bemerk. über d. Egel in der Schafleber ; Mag. d. Ges. Naturf. Freunde zu Berlin, VI pp. 128-131. Taf. III.

Raynaud—
'59.—"A Word on the Cachexia, or Rot in Ruminants." Trans. from the Journ. des Vét. by W. Ernes ; Veterinarian Vol. XXXIII. p. 488.
('60.)—Journ. des Vétér. du midi, p. 222.

Reynés, P.—
('69.)—Des moyens de recherches á employer pour retrouver l'origine probable des douves (Distoma hepaticum et Distoma lanceolatum) ; Marseille Méd., VI., 30-36.

RIVOLTA —
('68.)—Nodi nel pulmone dei bovini pro dotti da distomi; Il medico veter., p. 267.
('81.)—*Distomum hepaticum;* Bull. Soc. Cent. de France, p. 68.

REYNAL —
('56.)—Art. Cachexie; Nouv. Dict. prat. de Méd. Vét. Paris.

ROELL —
('69.)—Manuel de Pathologie. Vienne.

ROLLESTON, G.—
('80.)—Note on the Geographical Distribution of Limax agrestis, Arion hortensis & Fasciola hepatica; Zool. Anz. III, p. 400.
('80.)—The "Times" April 14.

RUDOLPHI, C. A.—
('03.)—Wied. Archiv. III. p. 1. 62.
'09.—Ent. sive Vermium intest. Hist. Nat.—Amstelædami, t II. I. p. 352.
'19.—Ent. Syn. pp. 92, 362-364, 583, 588, 616, & 617.

SAGARRA, V.—
('90.)—Un Caso distoma hepatico en el hombre; Revista de Med. y cirur. prac. XIV. pp. 505-512.

SCHAPER, A.—
('89.)—Deutsche Zeit. f. Thiermed. XVI. p. 1.

SCHAUINSLAND, H.—
('82.)—Beiträge z. Kenntniss der Embryonalentwickelung der Distomum; Zool. Anz. v. p. 494.
('83.)—Jenaische Zeitschr. XVI. p. 465.

SCHELL —
('55-'56.)—Mittheil. aus d. thierärztl. Praxis. Berlin.

SCHMIDT—
('87.)—*Distoma hepaticum* in der Lunge eines Rindes; Arch. f. wiss. u. prakt. Thierheil. XIII. p. 361.

SCHUBART —
('53.)—Over *Distoma hepaticum;* Aantecken Utrecht Genootsch sectie Natuur. en Geneesk. Ap. p. 28-31.

SCHWARZE, W.—
('86.)—Die postrembryonale Entwicklung. der Tremat; Z. f. w. Z.XLIII. p. 41.

SIEBOLD —
('36.)—Wiegmann's Archiv. p. 217.
('36.)—Müller's Archiv. p. 233.
('45.)—Wiegmann's Archiv. II. 223.

SIMONDS, J. B.—
'61.—Lecture on the Nature and Causes of the Disease known as Rot in Sheep; The Veterinarian. Vol. XXXIV., p. 274.
('62.)—The Rot in Sheep, its Nature, Cause, Treatment, and Prevention. London.

SMITH, WM. A.—
'63 —On Human Entozoa. Lond. p. 35-36, fig. 7.

Sonsino, P.—
(84a.)—La Fasciola epatica e il suo ciclo vitale ; La Natura, N 32.
(84b.)—Contro lo sviluppo della Fasciola epatica nelle gregge ; La Natura, N 47.
('90.)—Proc. Verb. d. Soc. Tosc. di Sci. Nat. 4 Maggio (*D. caviæ-F. hepatica*).

Sommer, F.—
('80.)—Die Anat. des Leberegels, *Distomum hepaticum*, L.; Z. f. w. Z., XXXIV. p. 539-640.

Spengel, J. W.—
('92.)—Abnormitäten bei *Distomum hepaticum ;* Verhand. de deutsch. Zool. Ges. p. 146-147.

Steel, J. H.—
'81.—*F. Hepatica ;* in A Treatise on the Diseases of the Ox ; London. pp. 93-95. fig. 16. p. 204.
'90.—Rot ; in A Treatise on the Diseases of the Sheep. London, pp, 135-172. figs. 29-48.

Stieda, L.—
('67.)—Anatomie der Plattwürmer. Berlin, 1867. Arch. f. Anat. û. Physiol. p. 52-59, Taf. II.

Stiles, [Charles] Wardell—
'94.—The Anat. of the Large American Fluke (*F. magna*), and a comparison with other species of the genus *Fasciola*, s.st.; vide Journ. Comp. Med. and Vet. Arch. pp.

Stossich, M.—
('91.)—Bull. Soc. Adr. di Sc. Nat. Trieste XIII. p. 111.
'92.—I distomi dei Mammiferi, Trieste. p. 7 ; Programma della civica Scuola Reale superiore.

Willemoes Suhm R. von.—
'73.—Helminthologische Notizen, III: Bau und Embryologie der Trematoden ; Z. f. w. Z., XXIII. p. 332.

Thomas, A. P.—
'81.—First Report of Experiments ; Journ. of Roy. Agric. Soc. of Eng. XVII. p. 19.
('82a.)—Second Report of Experiments; Journ. of Roy. Agric. Soc. of Eng. XVIII. p. II. Lond. p. 439-455. fig. 1-6.
('82b.)—A Parasite of *Limnæa truncatula* ; Journ. of Conchology III. p. 329.
'83a.—The Natural history of the Liver Fluke and the prevention of Rot; Journ. Roy. Agric. Soc. of Eng. XIX. p. 276-305, fig. 1-20.
'83b.—The Veterinarian, 1883. pp. 29, 39, 40, 180 and 469.
'83c.—The Life history of the Liver Fluke; Quart. Journ. of Micros. Soc. No. 89.

Turton, W.—
('07.)—The British fauna, containing a compendium of the Zoology of the British Islands ; arranged according to the Linnean System in- 12. Swansea.

Taiche—
('34.)—Réc. de Méd. Vétér. Prat. p. 289.

TAYLOR, W.—

('84.)—*Distomata hominis;* China Imp. Customs. Med. Rep. Shanghai, XXVII. 44-54.

'85.—Further note on *Distoma hepaticum*; China Imp. Customs. Med. Rep 1884. Shanghai, 1885, XXVIII. 58-60. 1 map.

VOGT & YUNG—

'88.— *Distomum hepaticum*, Lin; Traité D'Anatomie Comparée Pratique. Paris pp. 226-248. figs. 99-108.

WAIME—

('62.)—Ann. de méd. vétér. p. 32.

WALDINGER—

('18.)—Ueber Würmer in der Lunge und Leber der Schafe. Vienne.

WALTER, H.—

('66.)—Ber. f. Naturk. Offenbach. VII. p. 13.

WEINLAND, D. F.—

('74.)—Archiv f. Naturg. II. p. 423.

('75.)—Die Weichthierfauna der Schwäbischen Alb. Stuttgart, Von p. 101.

('83.)—Zur Entwicklungs. des Leberegels, *Distoma hepaticum*; Jhrshftn. d. Ver. f. Vaterl. Naturk. in Württ, p. 89-98.

WERNICKE, R.—

('86.)—Die Parasiten der Haustiere in Buenos Ayres; Deut. Zeit. f. Thiermed-u-vergl. Pathol. XII. p. 304.

WILSON, A.—

'80.—On the occurrence of the common Fluke (*F. hepatica*) in the human subject; Edinb. Med. J., XXV., 413-417.

WYSS, O.—

('68.)—Ein fall von *Distomum hepaticum* beim Menschen; Arch. d. Heilk., Leipz., IX, 172-177, 1 pl.

ZEDER, J. H. G.—

('00.)—Nachtrag zu Göze's Naturgeschichte der Eingeweidewürmer.

('03.)—Nat. d. Eingeweidew. 209.

ZÜNDEL, A.—

'74.—Cachexie aqueuse; Art. in Dictionnaire de Méd., de Chir., et d'Hyg. vét. par L. H. J. Hurtrel D'Arboval. Ed. par A. Zündel. Paris, Tome I. pp. 224-230. figs. 95-98.

'80.—La distomatose ou cachexie aqueuse du mouton. Strasbourg. pp. 30. (wood-cuts.)

BOULEY—

Rapport fait à la soc. nat. d'agricult. . . . sur un mém. intitulé; Considerations sur l'étiologie de la distomatose ou cachexie aqueuse des moutons. ib. p. 21-30.

ZÜRN—

'82.—Die Schmarotzer unserer Haussaügeth. Weimar, p. 207. tab. IV. fig. 5-8.

PENNSYLVANIA.

Proposed Act to Establish "The State Live Stock Sanitary Commission of Pennsylvania" and to Provide for the Control and Suppression of Tuberculosis and other Dangerous Diseases of Domestic Animals.

Section 1.—Be it enacted, etc.

That a Commission is hereby established to be known as "The State Live Stock Sanitary Commission." This Commission shall consist of five Commissioners, to be appointed by the Governor, as follows: the Secretary of the State Board of Agriculture, a practical breeder of live stock, the Secretary of the State Board of Health and two competent and qualified veterinarians who are members in good standing in any legally chartered veterinary medical association of this State, or who are graduates in good standing of some recognized and reputable veterinary college. Each Commissioner shall be appointed for a period of four (4) years, and shall be subject to removal by the Governor for incompetency or neglect of duty.

Sec. 2.—It shall be the duty of the Commission to protect the health of the domestic animals of the State; to determine and employ the most efficient and practical means for the suppression, control or eradication of dangerous, contagious or infectious diseases among the domestic animals, and especially of tuberculosis: and for these purposes it is hereby authorized and empowered to establish, maintain, enforce and regulate such quarantine and other measures relating to the movements and care of animals and their products, the disinfection of suspected localities and the destruction of animals as it may deem necessary.

Sec. 3.—Whenever it shall be adjudged necessary to the interests of the live stock industry of this State or to the welfare of the public to kill an animal or animals suffering from some contagious or infectious disease and an agreement cannot be made with the owner or owners thereof as to their value, three appraisers shall be appointed, one by the owner or owners of the cattle, one by the Commission or a Commissioner, and a third by these two, who shall under oath or affirmation appraise the animal or animals at their actual value at the time of the appraisement, and the owner shall be paid one-half of the said appraisement; provided that no such appraisement shall exceed fifty dollars for single unregistered

cattle, or seventy dollars for single registered cattle, or forty dollars for a glandered horse or mule; and further, provided, that no animal or animals found to be infected with contagious or infectious disease within ninety days after having been brought from another State into Pennsylvania shall be paid for, but, notwithstanding, the Commission shall be authorized to slaughter such animal or animals if, in their judgment, such a course is necessary to the interests of the live stock industry or to the welfare of the public; and provided, that in case it shall be found, upon making the autopsy of an animal appraised and killed by order of the Commission or of a Commissioner, that such animal was not at the time of slaughter suffering from the contagious or infectious disease supposed to have been present, the entire appraised value shall be paid to the owner or owners.

SEC. 4.—The Commission, or any Commissioner, or any of their duly authorized agents shall at all times have the right to enter any premises, farms, fields, pens, buildings, cars or vessels where any domestic animal is at the time quartered, or wherever the carcass of one may be, for the purpose of examining it in any way that may be deemed necessary to determine whether they are or were the subjects of any contagious or infectious disease.

SEC. 5.—Any person or persons wilfully violating any of the provisions of this Act, or any of the regulations of the "Live Stock Sanitary Commission," or wilfully interfering with officers appointed under this Act, shall be deemed guilty of misdemeanor and shall, upon conviction, be punished by a fine not exceeding one hundred dollars, or by imprisonment not exceeding one month, or both, at the discretion of the Court.

SEC. 6.—The Commission is hereby empowered to employ such assistants and agents, and to purchase such supplies and materials as may be necessary in carrying out the provisions of this Act, and to administer oaths or affirmation to the appraisers appointed under this Act.

SEC. 7.—The salaries of the Commissioners shall be fixed each year by the Governor.

SEC. 8.—For the purpose of this Act the sum of $50,000 annually is hereby appropriated.

SEC. 9.—This Act shall go into effect July 1st, 1895, and all Act or parts of Acts inconsistent herewith are hereby repealed.

The subject of herd inspection and the extermination of contagious diseases among our domestic animals has excited a great

deal of attention of late and has been the subject of much discussion Farmers realize that there is a prejudice against milk from uninspected cattle that is extensive enough to greatly restrict their market. It has been shown by Mr. George Abbott that the amount of milk consumed in Philadelphia has remained stationary during the last three years, whereas before that time there was an annual increase of several million quarts in the amount consumed. This is due, no doubt, to the agitation that has been carried on by the newspapers in regard to impure milk and diseased cattle, and to the constantly growing sentiment among consumers in favor of milk from cows that are known to be free from tuberculosis and other diseases. Moreover, tuberculosis has been becoming more prevalent among cattle during the past few years; live stock breeders are more fully appreciating the dangers of the disease and there is a general movement among them to demand an inspection of their herds by and at the expense of the State, and payment for the tuberculous animals that are found. The physicians of our cities are also in favor of some legislation that will tend to increase their confidence in the milk supply.

This demand for dairy inspection comes, therefore, both from the country and the city, so that it is practically unanimous, and there can be but little doubt that the coming legislation will provide methods and funds for this much desired measure. The many farmers who have suffered extensive losses from the ravages of tuberculosis are especially desirous of legislation that will exterminate this disease and, in part, reimburse them for the losses they are sustaining. A law which is acceptable to all of the interests concerned has not, until now, been presented to the public.

Quite recently a number of men representing the farmers and the veterinary and medical professions have been brought together in conference from all parts of the State to draw up an act that will fully cover the ground and will be just and equitable to all concerned. The result of their labors is attached hereto.

After much study and consultation it was discovered that it would be necessary to place the control of this matter in the hands of a commission in which the milk and meat consuming public, as well as the farmers, would have absolute confidence. This has been reached in the proposed "State Live Stock Sanitary Commission." It will be noticed that the composition of the commission is broad, but not broader than its work or the influence that it will be necessary for it to exert to yield the best results to the live stock owners. There are no oppressive features in the act, and

under the direction of a discreet, conservative, scientific and practical commission it will surely yield the desired results.

The appropriation asked for is $50,000, but this is very modest when it is remembered that the interests to be guarded are among the most important in the State; that they have an important relation to public health and that the market for milk and other dairy products will, no doubt, be increased far more than this amount during the first year of the operation of the law.

MASSACHUSETTS.

Realizing the importance of preventing the extension and continuance of bovine tuberculosis among our dairy herds, the Massachusetts Veterinary Association has prepared the following brochure in the hope that it may assist in spreading information on the prevention and eradication of this disease.

In referring to tuberculosis, the following questions are often asked by stock owners: (1st) how shall the occurrence of tuberculosis be prevented in a healthy herd, and (2d) how shall tuberculosis be eradicated from a herd that is already diseased.

In considering these questions it should be borne in mind that while it is a fact that, no matter how unhealthy the surroundings, bovine tuberculosis cannot exist without the presence of the bacillus, yet it is equally a fact that the germ requires a suitable soil for its development, and that a favorable condition of the body for the development of tuberculosis frequently results from hereditary predisposition, unsanitary surroundings and the injudicious management to which dairy cattle are so often subjected. It follows then that anything that tends to undermine the health of dairy stock should be avoided, and a continual effort made to strengthen and build up the constitution of the dairy cow.

The following recommendations are made to stock owners, to prevent the occurence of tuberculosis in a healthy herd:

1. As far as possible owners should raise their own stock, and endeavor to improve the constitution of the herd by breeding only from animals that are strong constitutionally and known to be free from any tuberculosis taint.

2. When practicable, all farmers should own a bull. They

should restrict its use to their own cows and not allow it to come in contact with other stock.

3. Allow no strange animal to come in contact with the herd without first making sure, by tuberculin test (which is now recognized to be the only practical method of diagnosis,) that they are free from disease.

4. Never buy from infected or suspicious herds.

5. Never purchase a cow with a cough or abnormal breathing, lumpy or diseased udder, swollen joints, or with a tendency to scour or bloat.

6. Overcrowding in barns should be avoided. Provide as much air space as possible, allowing at least 1,000 cubic feet for each animal.

7. Pure air and abundant sunlight are essential to the preservation of health in animals. Windows hinged at the bottom and dropped slightly inward at the top may be utilized for light and ventilization. In this way the air is directed upward, thereby preventing a current of cold air on the cattle.

8. In fair weather cattle should be in the open air as much as possible.

9. All barns should be kept as clean as possible, they should be sprinkled before being swept, and in consequence of the irritating and infectious character of the dust of stables, in which tuberculosis animals have been kept, sweeping should always be done while the cattle are in the yard.

10. In consequence of the danger to cattle from consumptives expectorating in and around barns, no consumptive person should be allowed to have charge of or come in contact with dairy cattle.

11. Do not keep manure in the cellar. Better have no cellar, but where one exists it should be well drained, well lighted and well ventilated.

12. Manure should be frequently removed from the neigborhood of barns.

13. The barnyard and its surroundings should be well drained and free from standing water and filth.

14. Early breeding, late and continuous breeding, as well as excessive and injudicious feeding and milking, are all frequent predisposing causes, and should be avoided.

With reference to the eradication of the disease in herds already affected, it is recommended that a thorough examination of the herd be made, using tuberculin test.

All animals found diseased should be slaughtered, and the remaining animals retested at intervals.

After the removal of these, attention should be paid, first of all, to the stables. Here, during the long confinement in the winter months, we may look for most of the inhalation disease so common in tuberculous cattle. Even when only a few cases of tuberculosis have been found, the stables should be disinfected by removal of all dirt and the subsequent application of disinfectants. Since tubercle bacilli are more resistant than most other disease germs, the strength of the disinfecting solution must not be less than as given. The following substances may be used:

(a) Corrosive sublimate (mercuric chloride), one ounce in about eight gallons of water (one-tenth per cent). The water should be kept in wooden tubs or barrels and the sublimate added to it. The whole must be allowed to stand for twenty-four hours, so as to give the sublimate an opportunity to become entirely dissolved. Since this solution is poisonous it should be kept covered up and well guarded. It may be applied with a broom or mop, and used freely in all parts of the stable. Since it loses its virtue in proportion to the amount of dirt present, all manure and other dirt should be first removed and the stable well cleaned before applying the disinfectant. After it has been applied the stable should be kept vacant as long as possible. Before the animals are allowed to return, it is best to flush those parts which the animals may reach with their tongues, to remove any remaining poison.

(b) Chloride of lime, five ounces to a gallon of water (4 per cent.). This should be applied in the same way.

(c) The following disinfectant is very serviceable. It is not poisonous, but quite corrosive, and care should be taken to protect the eyes and hands from accidental splashing:

Crude carbolic acid, one-half gallon.

Crude sulphuric acid, one-half gallon.

These two substances should be mixed in tubs or glass vessels. The sulphuric is very slowly added to the carbolic acid. During the mixing a large amount of heat is developed. The disinfecting power of the mixture is heightened if the amount of heat is kept down by placing the tub or glass demijohn, containing the carbolic acid, in cold water, while the sulphuric acid is being added. The resulting mixture is added to water in the ratio of one to twenty. One gallon of mixed acids will thus furnish twenty gallons of a strongly disinfectant solution having a slightly milky appearance.

(d) Whitewash is not in itself of sufficient strength to destroy

tubercle bacilli, but by imprisoning and incrusting them on the wall of stables they are made harmless until destroyed by prolonged drying. Whitewashing should be preceded by thorough cleansing.

Particular attention should be paid to the sides and ceiling of stable. All dust and cobwebs should be periodically washed down. Those parts coming in contact with the heads of cattle, stanchions, halters, troughs, etc., should be frequently cleansed and disinfected, even when they have not been used by avowedly diseased cattle.

The thorough disinfection and renovation of all infected barns is imperative, and good drainage, light and ventilation should be secured.

Where these conditions cannot be obtained it would, in many cases, be more economical and satisfactory to build new stables, always observing the recommendations suggested for healthy herds.

ALEX. BURR, M.D.V.,
JAS. B. PAIGE, D.V.S.,
JOHN M. PARKER, D.V.S.,
Committee on Tuberculosis

MASSACHUSETTS REGULATIONS.

Bearing date of November 5th, the Board of Cattle Commissioners of the Commonwealth of Massachusetts have issued a manifesto containing the following rules:

1st. Quarantine regulations upon cattle entering from without the borders of the Commonwealth.

2d. Regulation of cattle traffic at Brighton, Watertown and Somerville, which shall include all animals from within and without the Commonwealth.

3d. Systematic inspection of all herds in the State, beginning at the Cape; followed by extermination of diseased animals, disinfection of contaminated premises, and fixed quarantine regulations.

Their endorsement of the value of tuberculin as a diagnostic agent, is promulgated in the three following statements:

1st. That tuberculin is a reliable agent for determining the presence of tuberculosis in cattle.

2d. That tuberculin, properly prepared and carefully handled, can have no injurious effect upon healthy animals.

3d. That it is the only known means whereby a positive diagnosis can be made in the early stages of the disease.

In General Order, No. 3, they have quarantined against the United States, District of Columbia, Canada, Great Britain and any other localities, and declare the same to be infected districts. All animals entering the State after November 20th will be subject to quarantine until they have been inspected and released under order of said Board, except such animals as might be destined for foreign shipment, or intended for preparation as dressed beef for foreign shipment, and in the event of an accident by which it might be necessary to temporarily unload animals within the borders of said Commonwealth. All animals affected with tuberculosis are to be condemned and slaughtered by the act establishing said Board.

General Order, No. 4, fixes Brighton, Watertown and Somerville as quarantine stations to which all animals must be shipped, intended for use within the borders of the State. All railroads and common carriers are directed to take cognizance of General Order No. 3.

Under date of November 25th, all cattle in Nantucket County were ordered quarantined upon the premises of their owners, for the purpose of commencing their examination, with tuberculin, for the existence of tuberculosis. Compensation is to be allowed for all those condemned and destroyed. All free from the disease are branded with a seal, which makes them free to all markets in the State.

All premises will be disinfected, and this plan will be followed in Dukes and Barnstable Counties, and gradually extended throughout the State.

This movement is the most extensive one adopted by any State in the Union for dealing with this very important subject, and all eyes will be directed toward Massachusetts to note the results of the very thorough work they propose doing. We trust we may be favored from time to time by the Commissioners with brief accounts of the progress of their work, that through the columns of the JOURNAL we may keep our readers informed, and thus strengthen the contemplated movements in many other States.

THE VETERINARY ASSOCIATION OF MANITOBA.

Under the authority of Secs. 18, 19, 20, 22 and 26 of the Veterinary Association Act, 1890 (53 Vic., Chap. 60), the following persons ONLY are entitled to practice as Veterinary Surgeons in the Province of Manitoba, or to collect fees for the service rendered as such:

Atkinson, J. C.,	Winnipeg.
Baker, G. P.,	Binscarth.
Borradil, A.,	McGregor.
Coote, H. L.,	Minnedosa.
Coxe, S. A.,	Brandon.
Dunbar, W. A.,	Winnipeg.
Dann, Joseph,	Deloraine.
Fisher, John Frederick,	Brandon.
Graham, N.,	Manitou.
Hatton, J.,	Pipestone.
Hinman, Willet, J.,	Winnipeg.
Henderson, W. S.,	Carberry.
Irwin, John James,	Stonewall.
Little, Charles,	Winnipeg.
Little, William,	Boissevain.
McFadden, D. H.,	Emerson.
McGillivray, J. D.,	Manitou.
McMillan, Adam,	Oak Lake.
McNaught, David,	Rapid City.
Marshall, H. A.,	Glenboro.
Menteith, H. E.,	Killarney.
Morrison, Wm. McLeod,	Glenboro.
Murray, Geo. P.,	Morden..
MaLoughrey, A.,	Elkhorn
Rutherford, John Gunion,	Portage in Prairie.
Rombough, M. B.,	Morden.
Shoults, Wm. A.,	Gladstone.
Smith, Henry D.,	Winnipeg.
Spiers, John,	Virden.
Sweet, T. J.,	Morden.
Smith, W. H.,	Carman.
Taylor, William Ralph,	Portage la Prairie.
Thompson. S. J.,	Carberry.
Torrance, Frederick,	Brandon.
Walker, J. St. Clair,	Boissevain.
Wood, S. H.,	Selkirk.
Young, M.,	Manitou.

The practice of the veterinary profession in Manitoba by any other person is in direct contravention of the statute and renders him liable for prosecution.

W. J. HINMAN, Registrar.

EDITORIAL.

JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES FOR 1895.

The Journal of Comparative Medicine and Veterinary Archives for 1895 will be greatly strengthened in its various departments, and will, to the highest degree attainable, be replete with matters of interest to all veterinarians and students of comparative medicine. Records of all progressive movements in veterinary work at home and abroad will be carefully chronicled. Association news, National, State and local, will be regularly and promptly published, and all proposed legislation of a National State or local character will be kept before our readers. More original articles will be published than any year in our history, from the pens of the best writers at home and abroad. The veterinary and comparative medicine journals of the world will be drawn upon for choice selections and records of cases, treatment, etc., and thus give to our readers a rich summary of every advance in the domain of veterinary medicine and surgery. A complete record of college movements in North America will be a feature of the year, and every effort will be given by this journal to encourage and sustain an advanced movement in college work. A brief and fair review of all veterinary literature will be carefully given from time to time, and our readers will be kept thoroughly posted of all new books, etc. Veterinary sanitary work and the progress of animal industry will be kept carefully recorded.

News and items of interest will be published monthly, and, in fact, no feature of interest to the progressive veterinarian will be left untouched to make the Journal a welcome visitor to its every reader. Our columns will be always open for the records of cases, fair and gentlemanly criticism of all matters of public interest, and are freely extended to all our readers.

The price of the Journal will remain at $3.00 per year in advance, while special rates will be made to prospective and bona fide students at all veterinary or medical colleges.

Sample copies and all communications or inquiries will be cheerfully replied to. Address,

W. Horace Hoskins,
Business Manager,
3452 Ludlow Street, Philadelphia, Pa.

Rush Shippen Huidekoper, M.D., Veterinarian (Alfort),
155 West 56th St., N. Y. City.
W. A. Conklin, M.D., late Director Central Park Zoological Gardens, N. Y.,
51 Catharine St., N. Y. City.
A. W. Clement, V.S. (Montreal), late U. S. Inspector Bureau of Animal Industry,
916 Cathedral St., Baltimore, Md.
W. Horace Hoskins, D.V.S. (Am. Vet. College), President U.S. Vet. Med. Ass'n,
3452 Ludlow St., Philadelphia, Pa.
Editors and Publishers.

In this number of the Journal will be found a revised bill for the establishment of a Live Stock Sanitary Commission in Pennsylvania, together with an appeal for its favorable consideration, both timely and logical. Perhaps it may be said of this bill, without disparagement to any others, that while conservatively drawn, it is destined, if it becomes a law, to more satisfactorily solve the question of tuberculosis in our present light than any we have seen. It allows a wide latitude to the Commission, and does not surround its duties with doubtful specific instructions, and will thus not arouse in the minds of the laity rebellious feelings, and lead them to rear up obstacles in the way of its enforcement. We appeal to the veterinarians of Pennsylvania to work zealously for its enactment.

ROADS TO VETERINARY EDUCATION.

We have come to the cross-roads in veterinary college work in America, and night falls upon the longer existence of short-term schools, and the setting sun has closed over the forced plants which ripened as graduates from many of our veterinary colleges. Which road will you travel? is now the serious question of the hour. The signs of the times are clear as a noonday sun; the lesson learned in the present hour is painful to observe. Of all the schools, few have so well prepared their graduates as to be able to pass the necessary civil service examination as Meat Inspectors under the National Government. The country from Maine to California is flooded with members of the profession, clothed with sheepskins of varied worth, and hundreds of whom are to-day not

making a decent living; hosts of others are turning their attention to other professions and occupations; while others are yielding to unscrupulous methods of earning a living, and bringing disgrace upon themselves and just criticism of the profession. What a responsibility to undertake, for any body of men to establish a college whose work is to live after them for many years to reflect their errors, imperfect work and lack of appreciation of the great trust they thoughtlessly accepted. Not a single two years' school to-day but must face a serious future from this time forth, and failure to recognize the gravity of the situation will determine the closing of other doors. There must be no waiting longer for what some other school is going to do, for only those who quickly meet the present issue will survive the present forcible reminder of the character, quality and scope of work they have been doing.

With perhaps the one notable exception, now filled by the establishment of the California Veterinary College as a department of the State University, there is no need of a single new school in our land, and no longer a place for some of those which now exist. Without the need of special capital; without the requirements of a large plant; without the accessories of even many of the trades to-day, why is it that so many of our calling are without support and sustenance such as a profession of so much importance should insure? The answer quickly follows, because so few of our number are properly equipped for the work that is theirs to do. Without preparatory training, without laboratory work, lack of fitting surgical instruction, filled to overflowing with undigested book knowledge, and long-drawn lectures of glittering generalities forced upon students in the short-term courses, has now solved its own fate, and which road will you travel? is now pressing for an answer.

MANITOBA THE BEST.

On page 471 of this number of the JOURNAL, is a copy of the Legislation regulating veterinary practice in Manitoba. It is certainly the most distinct and definite legislation that we know of on this subject. It will be interesting to learn what provision is made for the future.

VETERINARY NEWS.

The Dietetic and Hygienic Gazette, a journal devoted to physiological medicine, published in New York, contains in its November number a modified milk bill, together with an article by Dr. Leonard Pearson, entitled "Thorough Milk Control Benefits Dairymen," and one entitled "Much Needed Milk Legislation," by Dr. W. H. Ford, of the Philadelphia Board of Health, all of which is well worth reading by those interested in these subjects.

The consideration of retaliatory measures in the Department of Agriculture against those countries that have placed embargoes upon our live-stock and dressed meat products, is stated to have received some consideration at the hands of those who officially represent our country in this direction, and it may result in the inspection of all foods and beverages imported from Germany and Denmark. It is to be hoped that there will be no necessity of resorting to any such selfish measures, and that those governments, who have declined to receive our products, the healthiest and best in the world, will see their error and remove said restrictions.

The State Association, organized at Montgomery, Alabama, on November 13th, after the adoption of the constitution and by-laws, selected the following officers: President, C. A. Cary, Auburn, Ala.; Secretary and Treasurer, Dr. George Joly, Montgomery, Ala.

Missouri has just joined the ranks with a new State organization, her initial meeting bringing together some twenty-five or thirty active members of the profession in that State.

The Central Society of Veterinary Medicine of France in its celebration of its fiftieth year of existence stands hardly without a parallel in the good work it has done for Veterinary Science the world over. We sincerely wish and trust that its future may be as full of good work as its past has recorded. It would have been fitting for the United States Association to have delegated one of its representatives to have joined with them in this anniversary occasion.

Not less than four bills looking to the control and eradication of tuberculosis have been offered at the present session of the Vermont State Legislature. It is hoped that some single measure

may be the outcome of this energetic movement on this subject, and that the many bills will not end in the loss of all.

Sir Charles Tucker, Commissioner of Canada, has been appealing to the people of Great Britain to remove the restrictive measures that have been recently imposed against Canadian cattle on the grounds of contagious pleuro-pneumonia. He made the emphatic statement that they had not proven that Canada had ever had a single case of contagious pleuro-pneumonia. The prospects for the lifting of the embargoes are not very promising.

A cablegram announces the probability of Germany appointing Dr. Frank S. Billings, recently of Nebraska Pathological Laboratory, as the one to whom will be referred for decision the gravity of the dangers that Germany claims arise from the importation of American cattle in the direction of Texas fever. This rather bears the impress of a diplomatic move rather than a determination there to settle this question upon an actual basis as to any dangers that may arise in this direction.

Alabama is about to organize a State Association, and as she possesses one of the brightest and most enthusiastic workers of the United States Veterinary Medical Association, we are very sure that it will be a welcome addition to the galaxy of Associations in this country.

Recent investigations on the subject have suggested that blacksmiths should now, in these days of endless electrical wires, place the nails as far distant from the sensitive laminæ as possible, in order to give to the horn its full power as a non-conductor, and that horse owners would do well to keep the hair at the fetlocks cut short, for when it is long and becomes wet it proves a strong conductor in the event of the horse stepping on a live wire.

It is to be hoped that the next session of the Ohio Legislature will not close its session until many of the excellent features of their Act to regulate the practice of Veterinary Medicine and Surgery are restored as they were in the original bill.

There is one great danger that the profession should not fail to measure at its full value, and that is in the establishment of a Veterinary Board of Examiners, the evil consequence that may result for many years in having the bill so drawn that unscrupulous and improperly qualified men may have the seal of approval of their States by virtue of these acts, and thus given a status in the community which they neither deserve nor are likely to use for

anything but unscrupulous purposes, and thus reflect great discredit on the profession under the protection of the law. Better had the profession wait until they are stronger rather than accept such legislation at this time.

The Minister of the Interior of Denmark has just placed an embargo against the importation of American live cattle and fresh meat.

The many friends of Dr. S. E. Weber will regret very much to learn of the serious relapse which has befallen him and compelled his retirement again from practice to the confinement of the hospital.

In a recent shipment of live cattle from Baltimore to Liverpool, out of a total of nearly 900 head, a loss of but two occurred en voyage.

The enthusiastic determination of the veterinarians of Iowa and vicinity that the meeting of 1895 of the U. S. V. M. A. shall be held at Des Moines, Iowa, is very much to be commended, and it will make it necessary for the other cities which are bidding for the place of meeting to be up and doing or they will be outrun in the race. Letters are pouring in upon the various members of the Comitia Minora from all parts of Iowa and many of the adjoining States, all of them bespeaking for the meeting, if held in Iowa, one of the most successful in the history of the Association. It is such action upon the part of the veterinarians of our country that bodes a great deal of good for the Association and that tends to give it that national importance which it should command. It makes one almost feel convinced at this writing that Iowa is the place of meeting for '95. What say the other cities?

Philadelphia has added to its new industries an equine meat factory, where horse meat is prepared for foreign markets, where such products are allowed to be sold on the public stalls.

Bulletin, No. 7, of the Bureau of Animal Industry, has just been issued, on Investigations Concerning Bovine Tuberculosis, with a special reference to diagnosis and prevention, as conducted in the Bureau of Animal Industry. This bulletin comes at an opportune time, when this subject is receiving so much serious consideration at the hands of the people at large, and when so much prospective legislation is being considered looking toward a better control and eradication of this disease.

Bulletin, No. 7, is one of the most carefully prepared statistical and scientific reviews of the question of bovine tuberculosis, and it is to be hoped that it will be read and thoroughly considered by every scientific veterinarian, for in addition to shedding a great deal of new light upon the subject, it will be a very great help in also considering this subject from a public point of view in the preparation of future laws for the control and eradication of this serious menace to public health and prosperity.

There is an awakening of public sentiment in intelligent communities of the need of rigid quarantine measures and regulations, that bodes much good for the better control and limiting of the dire results following outbreaks of contagious and infectious diseases. Much of this can be accredited to the earnest and intelligent support of the daily press.

The Alabama State Veterinary Medical Association was organized on November 13th, and while they have but about ten graduates in the State, this promises to be one of the most aggressive State organizations in the list which we have.

Dr. Jas. A. Waugh, late Army Veterinarian, has just recovered from a dangerous attack of typhoid fever, which removed him from professional work for nearly three months.

Prof. W. L. Williams, now holding the chair of Veterinary Science in the Montana Agricultural College and Experiment Station, will shortly issue a bulletin on topics of general interest.

A joint meeting of the Master Horseshoers Union and the Local Journeymen's Union, of Philadelphia, held in Industrial Hall, November 30th, was addressed by Dr. W. Horace Hoskins, President of the U. S. V. M. A., and Dr. D. B. Fitzpatrick, of Philadelphia, in support of the advantages to be derived by the establishment of a school of Farriery, on behalf of the apprentices to the shoeing art. A movement which promises to be extended by branches of the above associations in many of the large cities of this country.

Secretary Morton, in his report for the Department of Agriculture, draws attention to the point, that those who are engaged in the shipment of dressed beef and other meat products to those countries which require an inspection of said meats before shipment, that the cost of said inspection should no longer be paid by the National Government, but should be sustained by those who are reaping the benefit of said inspection. We heartily agree with him on this point.

COLLEGE NOTES.

Dr. Carter, of the Medical Department of the University of Pennsylvania, has succeeded to the Chair of Physiology in the Veterinary Department, vice Dr. Leo Breisacher, whose resignation was accepted, to enable him to take up practice in New York City.

The New York College of Veterinary Surgeons finds their new home enables them to add very much to the scope and effectiveness of their course of instruction.

The closer affiliation of the Montreal Veterinary School as a Department now of McGill University is proving a great step of advancement, and adding to the better success and strengthening of the course of instruction given at that school. It also gives a support and protection to that school that it did not possess before its union with McGill.

At the Veterinary Department of the University of Pennsylvania, the '94 class numbers between thirty and forty, which is quite up to the number of the class of '93, which is still another evidence that in the general shrinkage of students, at the various colleges of our country, those which have the broadest and most extensive curriculum have not suffered in proportion to those which have very short terms as inducements for new recruits to their classes.

California, in January next, will open a new Veterinary School, which will be in some way associated with the California State University, though the funds necessary for its establishment have been raised by private subscription. It is announced that no less than fifty students will enter at the opening of the session. This should be a good field for a Veterinary School, but it should be on a very high standard, and it is hoped that they will not start with a curriculum of less than three years of six months each.

It is interesting at this time to know that the proposed Veterinary Department of the Rocky Mountain University, at Denver, Colorado, which was in contemplation in the fall of 1890, was to start out with a three years' course. The third year course of lectures in the school were to be given free of cost.

Graduates of the Veterinary Department of the Ohio State University now number fifteen, four of whom hold positions as Instructors in Veterinary Schools, or are connected with Agricultural Experiment Stations.

Truly the signs of the times in Veterinary Education bear continued evidence of the result of the advancement the last two years. We note, with great pleasure, in the columns of our contemporary, *The Review*, the agitation for a higher curriculum in the Toronto School and its being placed under the government control of Ontario. This agitation arises in the best plac it could possibly arise, that is to say, among the Alumni of that institution.

A change was made at the beginning of the year in the Ohio Veterinary College at Cincinnati, in the resignation of Dr. N. B. Jones, Dean, and the appointment of his successor, Thomas King, a graduate of the Ontario Veterinary College, also chosen to fill the Chair of Theory and Practice. Dr. Jones showed great interest in the movement to advance the curriculum of Veterinary Colleges in North America, and we hope that the good work which he planned for their school will be more than carried out by his successor.

During the present collegiate term at Toronto Veterinary College, no special changes have taken place, only a more determined effort to make more thorough the course, and greater use of the increased facilities which they obtained some two years ago. They report a much better educated class of students for entrance this year.

Dr. W. H. Ridge, Lecturer on Obstetrics at the Veterinary Department of the University of Pennsylvania, has resigned. Dr. M. E. Conard, of West Grove, Pa., has been appointed in his place.

The preliminary announcement of the California Veterinary College has been presented to the public. They expect to commence their initial work on the 7th of January, 1895, after which the sessions will regularly convene in October. Associated with the enterprise are Drs. Bowhill, Buzard, Egan, Nief and Skaife, well known Veterinarians of the Pacific Coast. The adjunct faculty has not yet been announced. The degree of Doctor of Veterinary Science will be conferred. A curriculum of three years of six months each will be required as a course.

The National Veterinary College made, during the present collegiate year, several changes in the faculty. Dr. John Lockwood succeeded the late Dr. C. B. Michener as Profesfor of Principles and Practice of Medicine and Clinical Medicine. Dr. E. R.

Hodge was appointed to the Chair of Chemistry, vice Prof. E. A. de Schweinitz. A course in Medical Jurisprudence was added to the course of lectures, and are being given by Hon. Edwin Willits. A course in Practical Farriery has been added also this year. The entrance requirements call for a common school education, which gives great latitude in the determination of what this shall consist of. The senior, or graduating class, numbers fifteen, while the new class, or Juniors, number eight.

There have been no special changes at the Veterinary Department of the Iowa Agricultural College the present year. Their Senior class contains some thirteen students, while the Junior class contains nine. The number in the Freshman class we have not been able to obtain. We note that the faculty, as announced in the catalogue of '94, designates but three veterinarians on the teaching staff.

On Wednesday evening, December 12th, the Philadelphia Veterinary Society, in disposing of its regular order of business, was entertained by Prof. S. J. J. Harger, in a description of the conformation of the head and cranial cavity as an indication of intelligence, particularly from an anatomical point of view, and was listened to with much pleasure by all those in attendance; after which W. W. McGuire exhibited his famous pony, "Mazeppa," and demonstrated before the audience the wonderful degree of intelligence which this animal seems to possess; and to those who were present it was a revelation, mystifying as well as interesting, to see the animal, by the head and feet, tell the time by watches, count up the age of any in attendance, add up columns of figures, subtract one number from another, as well as the announcement of figures, under circumstances that would seem almost beyond belief.

It will be interesting to our readers to learn that the twelfth year of instruction at the Veterinary Department of Harvard University has in her various classes sixty-two students this year, which is an increase of about forty within three years, and this, too, under one of the highest entrance examinations of any veterinary school. A curriculum of three years, of eight months each, and a high standard for graduation, with the total fees $150 per session. It should be said in this connection, though, that this covers the matriculation and diploma fee, or, in other words, covers the cost of the entire instruction given. Her teaching staff now numbers twenty-one instructors, nine of whom are veterinary surgeons.

The subjects taught embrace anatomy, divided into an elementary and advanced course, covering two years; physiology; chemistry, general and medical, covering two years; botany; materia medica; comparative pathology; the inspection of meat, and special instruction in making autopsies; surgery; surgical pathology; operative veterinary surgery, with special instruction in the application and use of bandages and apparatus; ophthalmology of the domesticated animals, supplemented by a valuable, specially arranged course of clinical instruction at the eye and ear infirmary; a thorough course on parasites and parasitic diseases; the theory and practice of veterinary medicine, including the diseases of horses, cattle, sheep and dogs, each given by a special instructor; obstetrics, a special course; warranty and evidence, including a general discussion of the rules of evidence, with practical suggestions on expert testimony and the conduct of witnesses in court, with practical talks upon the law of sale and warrantee; practical work in the various laboratories, with six clinical exercises a week, each given by a different instructor, upon cases in the veterinary hospital.

This would seem to be an ideal course, and certainly must be a very great factor in advancing the standard of veterinarians at home and abroad, in the very near future.

Mr. J. H. Monrad, editor of the *National Dairyman*, has been added to the list of instructors on practical milk inspection, at the Kansas City Veterinary College. The school this year has fifteen in the senior class, and twelve in the junior class. Five of the latter have matriculated for the three years' course. All matriculants were required to conform to the first four rules for admission now exacted at the Veterinary Department of Harvard.

The American Veterinary College has enrolled this year 101 students. One taking a post-graduate course, twenty-seven in the third year's class, thirty-four in the second year, and thirty-nine in the first year. There is an increase of twenty-five per cent. in the first year class of '94 over that of '93, which is certainly a strong recommendation for an advanced curriculum, and must be very gratifying to the managers of that well-known school.

The friends of the New York College of Veterinary Surgeons, and the profession in general, will be very glad to learn of the added strength to the teaching staff and the curriculum of this school. As announced, after January 1st, all matriculants will be

compelled to enter for a three years' course. There have been added to the teaching staff Dr. R. W. Hickman, one of the Inspectors of the Bureau of Animal Industry, and Dr. Lellman, graduate of Berlin, upon whom was recently conferred the doctorate degree by the University of Giessen. In their new location and more commodious quarters they have had a very great increase in their hospital work. Their well-equipped clinic and operating room affords them greater opportunities for more thorough work. Their new lecture room, arranged to seat 250 students, is so constructed that lantern work may be used for the better instruction of the students in displaying upon the screen microscopical and other work. Chemical, histological, pharmaceutical and bacteriological laboratories have been provided with excellent apparatus for instruction. At present, the Health Department of the City of New York is using their laboratory for the preparation of the antitoxine of diphtheria. Septic and anti-septic surgery, as applied to veterinary practice, is receiving a special series of lectures; while meat and milk inspection and veterinary hygiene, including the methods of diagnosis with tuberculin and mallein, are also a part of the present course. All of which must surely tend to the greater advancement of American veterinary science, and places her schools on a high plane of work.

ONTARIO VETERINARY COLLEGE, TORONTO, CANADA.

The Christmas examinations of this well known and prosperous institution were concluded on Friday, December 21st. The Board of Examiners, which is appointed by the Board of Agriculture and Arts of the Province of Ontario, subjected the aspirants for the diplomas which they grant to a searching examination.

The following gentlemen were successful in passing the ordeal :

Ball, Nelson,	Auburn.
Coleman, David H.,	Philadelphia, Pa.
Cunningham, Robert,	Thorndale.
Dunn, George H.,	Erie.
Elliot, John T.,	Uxbridge,
Engal, John H.,	Milverton.
Friedheim, Louis,	Rock Hill, S. C.
Funston, William H.,	Toronto.
Harrison, G. W.,	Souris, Man.
Hisey, Dan,	Creemore.
Irvine, John D.,	Dalkeith.
Jemison, Geo.,	North Bay.
Kiethline, John T.,	Jenningsville, Pa.
McAfee, Robert A.,	Aylwin, Que.
Macdonald, John H.,	Wiarton.
Sawyer, S. Gordon,	Boston, Mass.
Snider, J. Herbert,	Guelph.
Swenerton, Wilson,	Wawanesa, Man.
Thomlinson, Benjamin,	Clinton.
Whybra, Farnell,	Niagara Falls, N. Y.

Primary examination—Arthur P. Freeman, anatomy and materia medica.

OBITUARY NOTICE.

Professor Thomas Walley, Principal of the Royal (Dicks) Veterinary College, Edinburgh, Scotland, died on the 10th instant (December) at La Haule, Jersey (England). His remains were conveyed to London, and the funeral took place at Highgate Cemetery, London, N., on the 15th instant. A number of friends, private and professional, attended, deeply grieved at the loss of such a dear friend.

Thomas Walley graduated from the Royal Veterinary College of London, at the Royal College of Veterinary Sergeons, Red Lion Square, on the 29th day of April, 1863. He embarked in practice in the North of England, and from his painstaking in the general routine of practice together with his assiduity as a student, he was selected to the vacant chair at Dick's College on the resignation or retirement of Professor Williams. As the principal of that College, he has done faithful work for the institution and its students, being held in the highest esteem by all with whom he came in contact, through his genial and candid bearing.

The four "Bovine Scourges" from his pen have been read by most every veterinary surgeon and inspector. The painstaking exhibited in these volumes is characteristic of the man in all his labors. He was a stanch friend to all domesticated animals, ever ready to defend them from acts of cruelty.

For some weeks Professor Walley's health had been failing, hence his visit to Jersey for an entire change of climate.

The profession has sustained a great loss, and so has the College over which he presided for so many years. We think it was in 1875 that Prof. Walley was elected to the vacant chair; thus twenty years of active service were passed by him prior to his death. * * * It is said: "There is no such thing as death—

In nature nothing dies;
From each sad remnant of decay
Some forms of life arise.

The little leaf that falls,
All brown and sere to earth,
Ere long will mingle with the buds
That give the flower its birth."

R. W.

SOCIETY PROCEEDINGS.

THE IOWA STATE VETERINARY MEDICAL ASSOCIATION.

The Iowa State Veterinary Medical Association held its seventh annual meeting at the Savery Hotel, Des Moines, on November 15th and 16th.

The meeting was called to order by the President, Dr. W. B. Niles, at 10 A. M. Roll call by the Secretary, Dr. J. E. Brown, showed about twenty members present, consisting of Drs. Brown, Edwards, Heck, Hammond, Austin, Johnson, Morse, Lincoln, Niles, Miller, Paine, Stalker, Sayers, Starkey, Stewart, and others. Drs. Adams, Day, Geddes, White, McCarthy, McCall, Peters, Wake, and a few others, were present as visitors. Letters of regret were received from Dr. Kennedy, M.D., of Des Moines, Secretary of the State Board of Health; from Dr. W. L. Williams, of Montana, and from two or three others whose names are not now at hand.

The President, in his annual address, called attention to several things seemingly of importance to the advancement of the profession. The following extracts show the tenor of the paper:

"Our Secretary has truly said in his circular letter, 'The Veterinarian of all others should be a Sanitarian.' How many of us in the past have paid much attention to sanitary medicine? Very few indeed. It is true that but few people ask for sanitary advice. Is not this condition largely the fault of the Veterinarian? As he in many cases is not prepared to give such advice, and has not impressed his patrons as having a knowledge of sanitary medicine, is it any wonder that he is not thought of in connection with such matters?

"The future Veterinarian *must be* a sanitarian. Of all medical men he is best fitted for a sanitary officer; not only to guard the health of animals, but the public health as well; being more familiar than the human physician with comparative medicine, he better understands the animal plagues which are communicable to man, and thus better understands the laws necessary for their prevention. The question of sanitation is exceedingly important, not only from an economical standpoint, but on account of the danger to the public health. Tuberculosis in cattle has recently been shown alarmingly prevalent in many States, and well merits the attention it is now receiving. In this State, the disease is, without a doubt, much more prevalent than is usually supposed, and should receive the consideration of all medical men, and the attention of all who are interested in our live stock interests and the health of the people.

"With the improvement in the value of horses which has already been manifested, and the widening field of the veterinarian's work as shown by the increasing demand for meat inspectors, city veterinarians, and other sanitary officers, we sincerely believe that the veterinarian capable of taking his proper position in the field of medicine has a good future before him. It seems to us that the demands for veterinarians with a more broad and liberal education—men capable of taking the advanced positions of the near future—should be a lesson for some of our colleges to enlarge their curriculums and in other ways improve their facilities. It is with some alarm that we view the starting of so

many new colleges, which must, judging by the length of the college course, turn out "horse doctors" rather than skilled scientific veterinarians.

"Have we not more to fear from the poorly educated man with his diploma, than from the non-graduate? Many think we have. Would it not be well for us, as an Association, to raise our requirements for membership as high as those of the U. S. V. M. A., and thus stand hand in hand with that society in resisting this threatened invasion of empyricism?

"Would it not also be well to put ourselves on record concerning army legislation? Last spring I wrote many of our Congressmen urging their support of the bill then in the hands of the Military Committee, and from most of them I received very encouraging replies. If we pass a resolution favoring such a bill, it may have some weight. If all the State Associations would do this, it would surely help. Let us do our part."

The printing of the proceedings of the meeting by the Association was also advised.

The Secretary and Treasurer in his report also called attention to some of the questions discussed by the President, urging their importance. His report showed the Association in a prosperous condition financially and otherwise, the Society having about seventy members in good standing.

The Board of Censors reporting favorably on the eighteen applicants for membership, they were duly elected. Many of these were present and took part in the meeting. The attendance of old members and the number of veterinarians joining was noted as being greater than for many years past.

The Committee on Legislation presented an instructive report explaining why desired legislation had not been secured. Although the bill introduced was only intended to regulate the title of the veterinarian, prohibiting non-graduates from assuming the title of the graduate, it could not be passed without amendments which the committee could not agree to; consequently, preferring no legislation to the passage of such an amended bill, it was not reported from the House Committee to which it had been referred. It was found that many members of the Assembly feared the influence of the non-graduates in their localities, and could not be induced to favor any bill which seemed to prevent them from practicing. It will thus be seen that legislation failed largely from lack of influence.

The Committee on Collective Statistics made a brief report, stating some of the difficulties encountered in collecting satisfactory statistics, but recommending that the work be continued for another year, so that the results might be compiled and thus made as valuable as possible.

Committee on securing the 1895 meeting of the U. S. V. M. A. reported that correspondence with Dr. Hoskins, the President of that Association, revealed that the meeting would, in all probability, come west, and that any steps taken for securing it for Des Moines should be taken soon. Correspondence with a number of western members showed they were heartily in favor of holding the meeting in Iowa.

The Association, acting on this report, decided to take active measures to secure the meeting, and appointed a committee of three to undertake the work. An assessment of $2.50 each was levied to constitute an entertainment fund in case the meeting should be secured and the money needed.

Under the head of New Business, several interesting questions were discussed, and, as suggested in President's address, Committees on Sanitation, Publication, Army legislation, and to consider advisability of preparing articles for the Agricult-

ural press, were appointed. Notice of an amendment to the constitution, raising requirements for membership as high as those of the U. S. V. M. A., to be acted upon at next meeting, was given.

The proceedings so far described consumed the time of the morning and afternoon sessions. At the evening session, beginning at 8 P. M., two valuable papers were read, one on "Meat Inspection at the Abattoirs," by Dr. S. Stewart, Government meat inspector of Kansas City, and the other by Dr. G. A. Johnson, City meat inspector of Sioux City, Iowa, on "Meat Inspection at the City Market." Dr. Stewart's paper was illustrated by stereopticon views and described fully the character of Government meat inspection. The kinds of diseased meats most frequently encountered was emphasized and many other points of importance touched upon. The paper was both interesting and instructive, and shed much light on a subject at present little understood by a majority of American veterinarians.

Dr. Johnson's paper was also a valuable contribution to sanitary literature. It gave the ordinance of Sioux City providing for the inspection of meats, fruits, etc., and mentioned the utter impossibility of the ordinance being carried out to the letter. The modus operandi, as carried out by the writer, was described An opinion as to what City inspection should consist of was also given. Both of the papers on meat inspection were very generally discussed, with much profit.

At the morning session on the 16th, about thirty members were present. Dr. W. B. Niles, of the Veterinary Department of the Iowa State College of Agriculture and Mechanic Arts, read a paper on "Milk and Dairy Inspection." This was illustrated by showing views of some of the bacteria which find their way into milk, and also of two tuberculous milch cows, apparently (judging by their appearance) in the best of health. In this paper, the inspection of milk, as carried out in Iowa, was described, and reasons given why a more careful and extended inspection should be made; together with what, in the opinion of the writer, this should consist of. On account of its importance, the subject of Tuberculosis was given prominence, and the results of personal work with the Tuberculin test given.

After a general discussion of this paper, hinging largely on Tuberculosis and the Tuberculin test, Dr. J. Miller, of Ottumwa, read an interesting paper on "Diseases of the Liver, Symptoms and Treatment." In this paper the writer described concisely a number of cases of liver disease coming under his observation during several years' practice; symptoms and treatment were made prominent. Quite a discussion followed, some thinking that if Dr. Miller had diagnosed *his* cases correctly, *they* had overlooked the disease in their own practice.

In a paper on "Flatulent Colic and treatment with Trochar and Canula," Dr. Austin, of Newton, Iowa, described puncturing of the colon through the rectal wall. Cases were mentioned where efforts to relieve by puncturing through the flank failed, but relief was quickly afforded by rectal puncture. Discussion brought out the fact that repeated puncturing through the flank was not necessarily serious, and that abscesses did not often occur if instruments were sterilized before using.

Dr. A. B. Morse, of Des Moines, described as "An interesting experiment" a case in which string halt, caused by "tibial neurotomy," was subsequently cured by Peroneo-phalangeal tenotomy. A general discussion of operations for relief of bone-spavin lameness followed.

Dr. C. M. Day, of the Veterinary Department of the Iowa State College of Agriculture and Mechanic Arts, read a paper on "Some Parasites of the Horse." The writer stated that the practitioner, in his opinion, should know more than is generally known of parasites coming under his observations in daily practice. The

paper dealt with a few species obtained principally from animals destroyed at the College for dissecting purposes. Owing to lateness of the hour discussion was rather brief.

A voluntary paper was offered by Dr. A. R. Wake, of the Veterinary Department of the Iowa Agricultural College, on the "Tuberculin test for Bovine Tuberculosis." In this the agent tuberculin was described, together with the modus operandi of its use, as carried out in quite a series of tests in which the writer had assisted. The reaction obtained in some cases, what should be considered a reaction, and the reliability of the test, were points discussed. As the subject of Tuberculosis had been extensively discussed before, discussion following this paper was not lengthy.

Election of officers resulted as follows:—President, J. Miller, of Ottumwa; Secretary and Treasurer, J. E. Brown, Oskaloosa; Vice-President, W. H. Austin, Newton.

Committee on resolutions reported several, all of which were adopted unanimously. The most important of these was one calling attention to the prevalence of tuberculosis and urging the necessity of more efficient sanitary regulations.

Before adjourning it was decided to meet at the call of the President and Secretary. This closed one of the most, if not *the* most, successful meetings in the history of the Association. This result is extremely gratifying, especially to those who were instrumental in making the meeting a success. While there is much work for the Association during the coming year, we believe the enthusiasm of the members will insure its accomplishment.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The December meeting of the Keystone Veterinary Medical Association was held at 3452 Ludlow Street, Philadelphia, on the evening of December 11th. President Lintz called the meeting to order. On roll call by Secretary Rhoads, the following members responded to their names: Drs. Bridge, Cullen, Hoskins, Lintz, Jno. R. Hart and Rhoads. As visitors, Drs. Thos. B. Rayner, F. S. Allen, H. T. George and J. T. McAnulty.

The report of the Board of Trustees was called for, and they reported the financial standing of the members now carried on the roll. After further discussion on the subject, the Secretary was instructed to proceed to collect the various sums of indebtedness of the members, and report at the January meeting.

The special Committee to appoint essayists for the various meetings, and those who were to report cases, was adopted, and the Secretary was instructed to notify these members of their appointments.

A revised bill looking to the establishment of a Live Stock Sanitary Commission in Pennsylvania was then presented, together with an appeal for support of the same, and after some discussion the Association indorsed the bill.

The subject of "Azoturea," which had been assigned for this meeting, was then considered, and cases were reported by Drs. Bridge, Allen, Cullen, T. B Rayner, McAnulty, Lintz and Hoskins. The value of purgatives was discussed, and a difference of opinion as to their value was expressed. The need of some remedies to produce diaphoresis was urged on the grounds that we always find the skin attempting to assist the kidneys in the eliminating from the body effete products which are essential to a successful termination of the case, and, as it always seems to act more promptly than the bowels, its assistance seems to be indicated as a very desirable means of a more successful ending of these cases.

Dr. Jas. T. McAnulty's application for associate membership was received and was referred to the Board of Trustees to report at the January meeting.

Some general discussion followed, after which the meeting adjourned.

W. L. RHOADS, Secretary.

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

The twelfth annual meeting of the Illinois State Veterinary Medical Association was held at the Sherman House, Chicago, November 26th and 27th, 1894. The meeting was called to order at 2 P. M., November 26th, by the President.

The roll being called, the following members responded to their names:

Drs. A. G Alverson, A. H. Baker, F. L. Brown, A. Babb, L. Campbell, V. E. Frizzel, J. T. Nattress, C. E. Sayre, Jno. Scott, R. W. Story, F. S. Schoenleber, A. M. Story, M. R. Trumbower, J. H. Ullrich, J. L. Tyler, M. Wilson, R. G. Walker.

The minutes of the last regular meeting were read and approved.

The President's annual address was then listened to.

The Treasurer being absent from last regular meeting, was unable to make a complete report.

The reports of the standing committees were received, and the committees discharged.

Drs. Gunning and Newby being absent, but having sent their papers, they were read by the Secretary.

Dr. R. W. Story was then called upon for his paper on "Acute Indigestion."

The usual lengthy discussion of the disease followed.

The meeting adjourned until November 27th, at 10 A. M.

November 27th.—Upon reconvening, the President called upon Dr. M. R. Trumbower, the State Veterinarian, who spoke on Actinomycosis, and the methods pursued in the inspection of meats at the Chicago Stock Yards.

This was followed by many remarks from the members on the methods that ought to be pursued in the inspection of meats in the country, for local consumption, also on the dangers arising from the use of flesh and milk from diseased animals for human consumption.

Dr. Tyler was then called upon for his paper on "Omphalo Phloebitis."

The meeting then adjourned until 2 P. M.

Upon reconvening, Dr. C. E. Sayre was called upon for his paper on "Homeopathy in Veterinary Practice."

This paper brought forth quite an animated discussion, but was ably defended by Dr. Sayre from his standpoint.

Dr. S. S. Baker then read his paper on "Remarkable Cases in Practice," and was followed by Dr. Campbell in his paper on "The Unexpected Recovery of a Case of Sunstroke"

The following gentlemen's names were then proposed for membership: Dr. Harry G. Hoover, "Am. V. C., '94," Sterling, Ill., vouched for by Dr. Trumbower; Dr. Chas. W. Johnson, "Ch. V. C., '87," Elburn, Ill., vouched for by Dr. A. H. Baker; Dr. E. L. Quitman, "Ch. V. C., '91," Chicago, Ill., vouched for by Dr. A. H. Baker; Dr. W. G. Neilson, "Tor. V. C., '91," Monmouth, Ill., vouched for by Dr. R. W. Story.

A motion was made by Dr. Wilson, seconded by Dr. Baker, that the above named gentlemen be elected to membership by acclamation. Carried.

The election of officers resulted in the following named gentlemen being elected for the ensuing year:

President, Dr. M. Wilson, Mendota, Ill.; Vice-President, Dr. A. G. Alverson, Bloomington, Ill.; Secretary, Dr. A. Babb, Springfield, Ill.; Treasurer, Dr. R.W. Story, Princeton, Ill.

Board of Censors: Drs. C. E. Sayre, M. R. Trumbower, J. T. Nattress

Dr. Wilson taking the chair, Dr. Trumbower made the suggestion that a new association be formed consisting of members in the Mississippi Valley.

Remarks in favor of such an association being formed were made by various members, and a motion made by Dr. S. S. Baker, and seconded by Dr. Trumbower, to the effect that the Secretary be instructed to correspond with the secretaries of associations in surrounding States regarding the formation of such an association, was carried.

The question of legislation regarding the introduction of a bill, in the Legislature, to regulate the practice of Veterinary Medicine and Surgery in this State was next discussed.

It was found that the members of this association present were in favor of the introduction of such a bill, and a motion made by Dr. A. H. Baker, seconded by Dr. Scott, that the sum of $10.00 each be subscribed to defray expenses of introducing such a bill, was carried.

Dr. Baker moved, and seconded by Dr. Scott, that the Chair appoint a committee of three to be known as the Committee on Legislation, and such committee be given power to act. Carried.

The chair appointed as such committee, Drs. S. S. Baker, Jno. Scott and J. T. Nattress.

Bills to the amount of $30.85 were audited and ordered paid.

The following standing committees were then appointed: Committee on Program, Drs. S. S. Baker, J. T. Nattress, T. J. Gunning; Committee on Arrangements, Drs. Jno. Scott, A. H. Baker, M. R. Trumbower; Committee on Membership, Drs. J. L. Tyler, A. M. Story, W. J. Martin.

A vote of thanks was tendered the retiring officers for efficient services, also to the essayist, and to the proprietors of the hotel for their accommodations.

The meeting then adjourned to come together at the call of the committee, in Peoria, next February. MATTHEW WILSON, M.R.C.V.S., *Secretary.*

MENDOTA, ILL.

PROCEEDINGS OF THE SOCIETY FOR THE STUDY OF COMPARATIVE PSYCHOLOGY IN CONNECTION WITH THE FACULTY OF COMPARATIVE MEDICINE AND VETERINARY SCIENCE OF MCGILL UNIVERSITY, MONTREAL, CANADA.

To economize space, the proceedings of the meetings are given in order, without further preface. They were all held in the lecture room of the Faculty, in the evening, and the President, Prof. Wesley Mills, occupied the chair at every meeting.

I.

The annual opening meeting of the Society for the Study of Comparative Psychology was recently held in the lecture room of the Faculty of Comparative

Medicine of McGill University. Dr. Wesley Mills, through whose influence the society was founded eight years ago, presided. The attendance was good and a large number of new members were proposed. The financial report also showed general prosperity, considerable money being voted for the purchase of books for the small but excellent library of the society.

The usual opening address was on this occasion unavoidably dispensed with, and, in lieu thereof, the society listened to the reading of a paper written by Prof. J. E. Le Rossignol, of the University of Ohio, entitled "Malevolence in the Lower Animals." At the outset the writer declares the limits of study in comparative psychology to be fixed. Only those psychical states of the lower animals are intelligible to us which are similar to our own. That which we do not experience or possess in some measure we cannot conceive in the lower animals. In the ravenous feeding of a dog after a prolonged hunt, we behold a feeling of hunger similar to that in our own experience. If reasoning from human analogy, we credit the animal with feelings of hunger, thirst and pain, so we can find a basis for similar states of joy, grief and anger, in fact, all the chief sensations and emotions that regulate the life of man. In the light of evolution the probability of such analogy is much increased. It is evident that the emotions must be studied by their psychical expression. No one can fail to see the essential resemblance between an enraged animal and a furious man ; and when we consider that the exciting cause is the same in both cases, the presence of a similar emotion is most reasonable. In most cases anger is connected with attack or defence. The heredity of anger, a subject of importance to the breeder, is most evident in the domesticated animal, whose character has been profoundly altered by association with man. Hereditary malevolence may be said to exist in a latent form, consisting in a certain irritability of the nerves, the capacity for anger rather than anger itself being inherited. The acquired impulse is exemplified by every ill-treated animal. The dreaded "rogue elephant," ostracized by his companions, develops unusually bad temper.

II.

The following questions bearing upon the heredity of bad temper in dogs had been submitted to Dr. Wesley Mills and others :

1. Is bad temper hereditary ?
2. Is training or environment of greater importance than heredity in determining the good and bad temper of a dog ?
3. Are good and bad temper respectively characteristic of any particular breed of dogs ?
4. What is the proper method to employ in overcoming hereditary bad temper in a puppy ?
5. What sort of treatment is calculated to spoil the temper of a puppy ?

Dr. Mills answered as follows :

1. I am satisfied that any trait may be hereditary, bad and good temper included. I would hesitate to breed from a bad tempered dog of either sex, no matter how excellent a specimen otherwise, especially if of a larger breed, as being more dangerous to man and his canine companions.
2. Heredity I believe by far the stronger.
3. No ; though it occurs more frequently among certain breeds, perhaps. A bad tempered setter or spaniel is rare. But bad temper may be said to be much more common in certain breeds than in others, rare in some, but absolutely confined to none.

4. Furnish an environment free from temptation and encourage a sense of justice—for dogs have this in a fashion at all events—from the first. Give him little chance to quarrel, but insist on his realizing that if he does it willingly, punishment of some kind, not necessarily corporal, will follow. I have found separation sometimes a severe punishment for dogs, they seem to know in some measure what it means. Disapprobation, scolding, is severe punishment for some dogs.

5. Teasing, hard usage, over punishment, injustice, etc. Highly bred dogs especially, suffer much physically under bad usage, especially punishment in anger and to excess.

The chief causes or occasions of malevolence are those connected with obtaining food, and those connected with reproduction. Only the fittest will survive the battles resulting from such malevolence, and thus does the latter tend toward the preservation of the species.

It may be gathered from the above that the methods for the suppression of malevolence should have a scientific basis. Exclude the causes. Intelligent regulation of breeding, the exclusion of corporal punishment, the development of affection, the constant companionship of a refined man—in whom the moral sense will dominate the malevolent emotions and prevent their imitation—will all aid in the suppression of malevolence.

So many of these suggestions are applicable to the infant that it recalls the words of Dr. Mills, who asserts: "It is certain that the dog may be treated in all respects more as if he were a child than as bearing any close relationship to our other domestic animals."

After some criticism on the paper the meeting adjourned.

III.

Messrs. Thomas and Carey contributed papers, Mr. Thomas reading one entitled "Thoughts on the Psychic Processes in Lower Animals," in which he discussed several facts which had come under his direct notice, among others a very interesting case of a pointer dog belonging to a family residing in the city. The family always spent their summer vacation about one hundred and twenty miles back in the country, and the dog being a favorite animal always accompanied them, riding in the same car. Last fall when the family was returning home, accompanied, as usual, by the dog, the conductor coming into the car objected to the animal riding with the passengers and removed him to the baggage car, where he was tied up. However, this must have been done insecurely, as the dog got loose and jumped from the train when about sixty miles from home. The family was immediately notified and the railway officials sent telegrams to all their agents along the route, but their efforts were unavailing, as the dog had disappeared. About a week after the above event the mistress of the dog, who had been granted a pass, good for one month, took a trip along the line in search of the missing animal, and, when on the way back at a station twenty miles from her own town, to her intense surprise the dog came into the car she occupied and walked up to her. How can we account for this strange event? Was it by sense of smell or do these animals possess faculties not possessed by men?

Mr. Carey followed with a paper entitled "Psychology of the Honey Bee," in which he narrated some very interesting and peculiar facts in regard to the habits of these insects.

After listening to and discussing the above papers, Mr. Hall related a case deserving of more than passing notice. Some men were engaged in blasting a short distance from this city. Their foreman was in the habit of calling out "Helloa!"

before firing the fuse. A flock of chickens in the vicinity had learned to recognize danger when they heard this signal, and always started off for a barn near at hand. On Mr. Hall going over and questioning the men in regard to the matter, he was informed that when the first two or three blasts had been set off, no attention whatever was taken of them by the chickens, and the effect had been somewhat disastrous to their flock, but after that, evidently recognizing danger, they always sought their place of shelter. In order to see what the effect would be were he to give the signal, Mr. Hall called out "Helloa!" but no notice whatever was taken of his cry, but on the foreman calling out again they set off once more. How can we account for these strange actions?

IV.

Mr. Salley read a paper entitled "Do the Dog and Horse Possess all the Faculties of Man?" in which he reasoned that as both man and beast possessed brains, and a nervous system of similar construction, it was natural to conclude that both had reasoning power, and if granted this, then, do they not possess all the faculties of man?

This called forth discussion, and the questions considered in connection with Mr. Salley's paper were: "Have the lower animals rights in the strict sense of the term?" "Can lower animals be taught to articulate?" "If animals possess no reasoning power, have they no rights?" And lastly, "Have we any right to deprive animals of their liberty?" In regard to the latter question Dr. Mills expressed himself most emphatically as follows: "We have no right to interfere with the pleasures of the lower animals, except to advance the welfare of all sentient beings, i. e., of the animal creation as a whole."

Mr. Shaw followed Mr. Salley, reading a paper entitled "Animal Psychology," in which he dwelt upon the reasoning powers displayed by the dog, contending he was influenced by relationship to man, for centuries having been his companion and adapting himself to his many wants and even caprices. Mr. Solandt then occupied the attention of the meeting while he read "Animal Psychology as Viewed by a Student of Comparative Medicine." He also claimed that animals really possess reasoning power, and proceeded to show the difficulties they contended with owing to the shortness of their lives, lack of instruction, etc. He also related several interesting occurrences in regard to animals, concluding an eloquent paper by stating that he thought only those who were willing to look after and care for dumb creatures should be allowed to have possession of them.

V.

A regular meeting of the Association for the Study of Comparative Psychology was held in the lecture room of the Faculty of Comparative Medicine and Veterinary Science, the president, Prof. Wesley Mills, in the chair.

The first essay of the evening was read by Mr. Hollingsworth, entitled "The Reasoning powers of Animals." The writer first points out the difficulty of the subject, inasmuch as the term psychology does not admit of an easy definition or one which is clearly comprehensible. He illustrates what is generally understood by the term psychology or the science of mind by stating that two different principles make up life, as primary and secondary, one the originator and the other executor of all things, mind and body being associated. A man walking towards the north end of the city suddenly stops, turns around and walks south, the mind compelling the body to perform this movement. He then shows the analogy which exists between man and the lower animals by the latter possessing a mind, though of an inferior order. Memory is a faculty or quality developed to a high degree in them,

as will be seen in horses and dogs, and illustrated by personal observation of the writer, as in the case of a dog running at full speed, and seen to stop, turn around and run in the opposite direction. owing to sudden recollection of something; a horse pulling the peg out of a gate so as to let himself into a rich pasture, because he had seen his master do the same many times.

Mr. Buchan presented an elaborate paper on "The Psychic Development of the Lower Animals Compared with that of Man." The writer defines psychology as the science which treats of the facts and phenomena of self. The main characteristics of self are consciousness, which not only exists, but is cognizant of the fact. In all animal life there is a feeling of separate existence, but not of equal intensity. By descending the animal scale, features and characteristics are lost, although some of the lower animals exhibit a high development in the special senses and the muscular system, but there is a gradual descent until we get to the lower forms, where mental faculties are not present or special senses developed to any extent ; but still there is an existence which can be imagined as a hazy state of consciousness composed of a blending of the sensations which develop distinctly in higher animals. Man is considered to be possessed of higher mental qualifications than any other animal in the scale, which must be brought about by development. At birth he is inferior in many respects mentally and physically. The growth of psychic power in the human subject gives rise to three questions: 1. What element enters into this development? 2. How is this element introduced? 3. Why does each particular mind develop in its own peculiar manner? The writer states that development of mind is due to certain factors whose existence, properties and combinations we seek in psychology. Education is introduced and accomplished by the will, the action of which is not always so apparent as in the case of the senses. Information being received may produce a change in the mind, as joy, sorrow, hatred, love, satisfaction, etc. The peculiar manner in which each mind develops is owing to the fact that man inherits a great variety of feelings, appetites, passions, and makes effort to obtain knowledge and perform actions to gratify feelings. By the psychic powers in man comparison with the lower animals are considered. The elements making up their psychic development are the same as the man, the only difference being in degree rather than kind. Their experiences are different, being due to difference in environment. By observation the writer states that lower animals hold communication with each other, and as their needs are few compared with man's, their vocabulary is sufficient. There is no doubt regarding communication between animals of the same kind. Education in the lower animals is seen apparently in the case of a robin It built its nest where its movements could be watched. About one week before the young birds were ready to leave the nest, the mother bird gathered material and built an entire new border around it, the young watching the performance. This looked like giving the young birds a lesson in practical work. Animals learn but very little by observation from other species. As evidence, take a horse, say, thirty years old. The greater part of that time he may be tied to a ring in his stall. Every day his attendant will untie him and take him out ; still he will stand in that position before he will attempt to untie his rope. The reason seems to be the inability to connect this action of man with one he might perform himself. Many horses have learned to do this, not by observation, but by experience. Man's association with the lower animals develops them to a high degree, due to changes in environment and experiences, which is a modified source of information. Evidence of animals' feelings can be plainly seen in their expressions of joy, sorrow, etc., also in receiving their first lessons in training. Experience teaches him that resistance is useless. The writer

states that the maximum of success can be reached by kindness and firmness in the education of lower animals. Injudicious force and cruelty will develop hatred and distrust, and animals may seek opportunity for revenge. Occasionally we meet with animals possessing almost human intelligence; but the average animal possesses these faculties to a certain degree only.

Mr. Hall read an interesting paper on "Animals possess reasoning power, but not to the same extent as man." Language in animals is stated by the writer to exist, and animals try to learn man's language to a greater extent than man tries to learn theirs. He also compared the language of lower animals with that of some of our Indian tribes, whose language is composed only of seventy-three words. Instinct is treated under the heads of organization, heredity, education, imitation. The author thinks nature has so related all faculties that if one is lost it is made up by more special development of some other, as loss of sight may render the sense of touch more acute. Language does not come natural to a child although it is inherited to a certain extent. Imitation plays an important part, for a child will learn a foreign language. Birds have been found singing differently from the style characteristic of their species. Instincts are crystallized habits, comprising those faculties of mind which lead to conscious performance of action that are adaptive in character and showing the knowledge of relation to the means employed and the ends attained. Domestic instincts being less fixed than natural, the writer makes a comparison of the brains of different groups of animals, stating the same chain of connection exists, though differing in size, in the different animals and in the same parts. Many animals during infancy surpass the child in intelligence, and experience in old age that stage of dotage similarly to man. That dogs have a sense of cleanliness is clear, but that they have a sense of right and wrong is an open question.

VI.

Messrs. McAlpine, Morin and McLeod contributed papers. Mr. McAlpine's subject was "Thoughts on Psychology," in which he proceeded to argue that there was an exchange of ideas among the lower animals, and held that no reason existed why man could not learn their language if he only devoted sufficient time and labor to accomplish this end. A great many difficulties would certainly have to be overcome, but the end, if accomplished, would be as great a boon to mankind as many discoveries which have taken centuries to complete. Mr. McAlpine related an incident that had come under his direct notice in proof of his statements. A railway was built through a pasture where some cattle were kept, and on the first train passing through they exhibited great fear and ran to the furthest end of the field. This they continued to do for some time, but by degrees they became used to the new sight and would graze near by without taking any notice of the cars. Later on in the season other cattle that had never seen a train before were placed in the same field, and when the first train passed they exhibited great fear and would doubtless have acted as the others had formerly done had it not been for their example. They stopped grazing and, running towards them, seemed by a series of motions and expressions to make them understand there was no danger, and although the strange animals at first exhibited a little distrust, they returned and never afterwards showed any signs of fear. The essayist then proceeded to point out the intelligence exhibited by some animals in one way or another—in some cases to an extraordinary degree in one particular direction, thus proving that various talents were present and only lie dormant for want of a stimulus, and if proper means were taken they might possibly be all developed in one animal.

Mr. Morin then proceeded to read a paper on "Instinct by Natural Selection," in which he alluded to the migratory instinct in birds, the wonderful abilities displayed by some young broods which fly by themselves and are not accompanied by older birds, flying over enormous tracts of land and sea without guidance or previous experience. Also related to these birds are others, such as carrier pigeons, which, although not migratory, have the "homing" faculty so well developed. Again, he alluded to the propensities of young pointers and setters to point the first time they, are taken out, retrievers to retrieve, and to young sheep dogs having the tendency to run around a flock of sheep instead of at them, as many other dogs would do. These latter facts are all alluded to by Darwin, whose accuracy on such a subject is not likely to be disputed. Darwin also has pointed out a serious difficulty in his theory of the origin of instinct by natural selection. It is that among various species of social insects, such as bees and ants, there occur neuter or asexual individuals, who manifest entirely different instincts from the other or sexual individuals, and, as the neutrals cannot breed, it is difficult to understand how their peculiar and distinctive instincts can be formed by natural selection, which requires for its operation the transmission of mental faculties by heredity. Darwin supplies the only possible means by which this problem may be solved, viz., "by supposing that selection may be applied to the family as to the individual."

Mr. McLeod then proceeded to read his paper, "Remarks on the Psychic Capabilities of Animals," and confined his remarks principally to the dog, commenting on the talents and sagacity displayed by this animal, and claimed that when improved by association with man, they became, to a certain extent, rational beings. His courage is unbounded, he appears never to forget a kindness, but soon loses recollection of an injury if received from his master or from one he loves. His docility and mental pliability are great, his habits social, and his fidelity not to be shaken; his discrimination is equal in many respects to human intelligence, and if he commits a fault he is sensible of it, and shows pleasure when commended. Mr. McLeod alluded to the dog when in a wild state only howling, but on becoming the friend and companion of man he has then wants and wishes, joys and fears, to which in his wilder state he appears to have been a stranger; his vocabulary, if it may be so called, increases and he is able to express his enlarged and varying emotions. He anticipates rewards and punishments, learns to solicit the former and depreciate the latter, evidently discerns days of household mirth or grief, and deports himself accordingly. Let us look at the power of calculation in animals; that they possess a wonderfully correct knowledge of time and its flight cannot be doubted, but what the nature of this knowledge is and how acquired is not so apparent. Many dogs, cats, fowls and even wild birds know almost within a few minutes man's meal hours. Milk cows know when it is their time to be milked and fed, as anyone who chooses to observe these animals will perceive. Several other points were made by the essayist before concluding.

The president, Dr. Mills, complimented the three gentlemen on the evident care and thought shown in their papers.

VII.

The following gentlemen contributed papers: Mr. Moore, "Intelligence of the Lower Animals," and Mr. Mulvey, "Psychology of Man and the Lower Animals Briefly Compared." Mr. Moore, in his paper, related and discussed some interesting experiences bearing on reasoning power in lower animals, the following among others: A horse had been in the habit of taking the children to school in the morning, being left to return home by himself. One day, instead of going home,

he went to the blacksmith's shop, which was quite out of his usual route. The smith, thinking the animal had wandered from home, tried to send him away, but the horse persisted in remaining. Finally, he held up one foot, and upon examination a stone was discovered wedged in between the frog and the shoe. The stone was removed and the animal went straight home. Surely we have reasoning powers in this case.

Mr. Moore also related a circumstance which goes to prove that the lower animals have retentive memories. An elephant which was kept for the purpose of assisting in loading and unloading lumber from boats was given a piece of tobacco by one of the men working near. Thinking it was candy, he put it into his mouth, but as soon as he tasted it, he made a rush for the fellow, who, however, managed to elude him and made his escape. Next season, which was several months after this incident, the same man appeared on the scene and was not paying any attention whatever to the elephant when the latter suddenly began to make towards him, and it was only with difficulty that the man made his escape.

Mr. Mulvey followed with his paper, showing that while the lower animals were lacking in regard to development of some functions, when compared with man, yet we must acknowledge they possess others more acute.

The president complimented the writers on the care evinced in the preparation of two such papers of the merit which the above account gives a very inadequate conception. Mr. Moore's paper showed a praiseworthy amount of research, and Mr. Mulvey's observations turned to good account. The discussions hinged largely on the question : Can animals reflect in the proper sense of the term?

VIII.

The essayists of the evening were Messrs. Anderson, Baker and the secretary-treasurer, Mr. McGillivray. The first paper read was by Mr. Anderson, who discussed "Practical Thoughts and Facts in Connection with Comparative Psychology," contending in his paper that psychology was not merely a word in composition, but a study in which the use of science, common sense, time and thought would not be misapplied. Instances of memory are exhibited in the dog just as acute as in man, in fact anatomically, physically and psychologically to a certain degree we are closely allied to the lower animals. Man is blessed with talents many of which are refined in nature, likewise the dog; for example, music is claimed to be refining, and without doubt is. Who has not seen a dog sitting for a length of time listening to piano music, and if one were to produce a marked discord the animal would immediately express his feelings by a howl. Mr. Anderson then gave some of his personal experiences in connection with the lower animals, among others a rather interesting one concerning a dog in his possession. The dog had conceived a great liking for one of the members of the household, and nothing pleased him better than being allowed to rest at the room door. The room in question was situated at the end of a hallway, which was covered by oilcloth, consequently any person immediately below could hear the dog when his claws came in contact with the glazed surface. One day the dog as usual had taken up his abode at the bedroom door, but was sent down-stairs ; however, in a little while he was heard again crossing the oilcloth up-stairs. Before removing he was this time given a good scolding, and it was easily seen from his looks that he was ashamed of himself. One of the members of the household then went into a room opposite the before-mentioned one, and, leaving the door slightly open, awaited further developments. In a short time the dog was seen approaching, walking with a peculiar gait ; the whole weight

of his body was placed on the ball of his foot, and it was impossible to hear his claws touch the oilcloth. Have we not got here a perfect case of reasoning, somewhat as follows: "If I can only succeed in passing this oilcloth I will be all right"?

Mr. McGillivray then proceeded to read his essay, "Illustrations of Animal Psychology," claiming that psychology was to-day the subject claiming attention from some of the greatest scientists of the day. Any person having to do with the rearing and caring of domestic animals, and who makes use of his opportunities, cannot fail to be impressed by the fact that many of their actions show reason to a certain extent. The following incident which occurred in our own streets a few days ago, was then related: A horse standing about fifteen feet from another wanted to approach his fellow, but was prevented by a weight which was attached to his halter; finally, however, he solved the problem by taking the strap in his mouth about a foot from the weight, which he carried to within reach of the horse with which he wished to communicate. A man in a similar position would have done exactly the same, and on his part it would be attributed to reason; why is it not reason in the horse?

Mr. Baker's essay was then listened to, "Reasons for Protection of Young," several very interesting features being emphasized in regard to this question.

The meeting then adjourned, not, however, before the president had complimented the essayists on the evident care shown in the preparation of their papers. He also, as in former years, suggested fields for investigation during vacation.

The society decided to write the secretary for the Prevention of Cruelty to Animals, expressing sympathy with them in their crusade against the sale of chameleons.

WELLCOME LIBRARY INSTITUTE

World's Tribute to

Chas. Marchand's

Glycozone

Highest Award,
Both Medal and Diploma.

Chicago 1893.

Avoid Substitutes

Prescribe only

in original, unbroken

Packages

1 lb. ½ lb. ¼ lb. Bottles

Not Sold

in bulk

World's Fair Medal and Diploma

awarded to

Marchand's Glycozone

Send for

Free book of

118 Pages

Physicians

Remitting

Express

Charges

Will

Receive

Free Sample

THIS HARMLESS REMEDY PREVENTS FERMENTATION OF FOOD IN THE STOMACH.

IT IS THE MOST POWERFUL AGENT FOR HEALING PURPOSES. IT CURES:

DYSPEPSIA, GASTRITIS, ULCER OF THE STOMACH, HEART-BURN, AND ALL INFECTIOUS DISEASES OF THE ALIMENTARY TRACT.

Glycozone is sold only in 4-oz., 8-oz., and 16-oz. bottles, bearing a yellow label, white and black letters, red and blue border, with signature.

PREPARED ONLY BY

Charles Marchand

Chemist and Graduate of the "Ecole Centrale des Arts et Manufactures de Paris" (France)

☞ Mention this publication.

SOLD BY LEADING DRUGGISTS.

Laboratory, 28 Prince St., New York.

x

Shipping Horses.

Always have something to put on wounds. Phēnol Sodique arrests inflammation immediately. Natural healing follows.

Equally good for all flesh.

If not at your druggist's, send for circular.

HANCE BROTHERS & WHITE, Pharmaceutical Chemists, Philadelphia.

Look out for counterfeits. There is but one genuine. Better cut the advertisement out and have it to refer to.

HARVARD UNIVERSITY.

School of Veterinary Medicine.

The course is a *graded* one of three years of nine months each. There are unequalled facilities for practical instruction in all branches; and the Hospital, maintained in connection with the School, places a large practice under the constant observation of students.

For illustrated catalogue, and all further information apply to

Charles P. Lyman, F.R.C.V.S., Dean

Graduates of this School are eligible for membership in the United States Veterinary Medical Association.

OHIO VETERINARY COLLEGE

CINCINNATI, OHIO.

Incorporated under the Laws of the State of Ohio.

SPECIAL ATTENTION GIVEN to PRACTICAL INSTRUCTION

Session of 1894-95 Commences October 5th.

For further information, apply to

NEIL B. JONES, PRINCIPAL.

135 SYCAMORE ST., CINCINNATI, OHIO.

University of the State of New York.

American Veterinary College,

139 & 141 WEST 54th STREET, NEW YORK.

Incorporated and Organized 1875 under the General Laws of the State of New York.
Re-incorporated and Re-organized 1888 by Special Act of the
Legislature of the State of New York.

This School has a graded course of instruction which extends *over three years.* The Sessions open in the first week of October of each year. Besides the general curriculum, practical instructions with Laboratory works, are given in Chemistry, Toxicology, Histology, Surgical Pathology, Bactariology, Minor and Major operative Surgery. For the new catalogue and further information apply to A. Liautard, M.D., V.M., Dean.

NEW YORK COLLEGE OF VETERINARY SURGEONS

AND

SCHOOL OF COMPARATIVE MEDICINE.

CHARTERED 1857.

For circular and further information apply to

H. D. GILL, V.S., Secretary,

332 East 27th Street, New York City.

ESTABLISHED 1807.

GEO. D. WETHERILL & CO.,

PURE DRUGS AND CHEMICALS,

56 NORTH FRONT STREET,

Philadelphia, Pa.

UNIVERSITY OF PENNSYLVANIA.

VETERINARY DEPARTMENT.

The course of instruction is graded and extends over three years, with one session beginning the 1st of October and ending the last of May in each year.

Practical instruction, including Laboratory Work in Pharmacy, Chemistry, General Biology, Histology, Physiology, Comparative Osteology, Dissecting, Botany, Pathology, Bacteriology, and Inspection of Meat and Milk, with personal care and treatment of animals in the hospital and clinics, is part of the regular course without additional expense. *For Catalogue, address*

JOHN MARSHALL, M. D., *Dean of Veterinary Faculty.*

Cor. 36th and Pine Streets, Philadelphia.

Graduates of this School are eligible for membership in the United States Veterinary Medical Association.

McKILLIP VETERINARY COLLEGE,

CHICAGO.

The course of instruction commences in October and extends over three years with six months duration.

The course is based upon a broad, scientific and practical curriculum.

It affords students the advantage of work in the routine business of the largest practice in this country. Students who wish to enter the college must have the pre-education agreed upon by the ASSOCIATION OF VETERINARY FACULTIES OF NORTH AMERICA.

For catalogue and information apply to

PROF. OLAF SCHWARZKOPF, DEAN,

1639 Wabash Ave., Chicago.

UNITED STATES COLLEGE OF

VETERINARY SURGEONS,

222 C Street N. W., Washington, D. C.

SESSION 1895-96 BEGINS OCTOBER 1st.

☞For prospectus and full information, address

C. BARNWELL ROBINSON, V. S. DEAN.

THE JOURNAL

OF

COMPARATIVE MEDICINE

AND

VETERINARY ARCHIVES.

EDITED BY

W. A. CONKLIN, PH.D., D.V.S.

RUSH SHIPPEN HUIDEKOPER, M.D., Veterinarian (Alfort),

NEW YORK.

W. HORACE HOSKINS, D.V.S.,

PHILADELPHIA, PA.

A. W. CLEMENT, D.V.S.,

BALTIMORE, MD.

VOLUME. XV

1894.

3452 LUDLOW STREET,

PHILADELPHIA.

LONDON: BALLIERE, TINDALL & COX.

Entered according to the Act of Congress, in the year 1892, by
W. A. Conklin & Rush S. Huidekoper,
In the office of the Librarian of Congress, at Washington, D. C., U. S. A.

Entered at the Post Office. at Philadelphia as Second-class Matter.

LIST OF CONTRIBUTORS.

Adami, J.
Bell, John A.
Bittles, E. E.
Black, D. Eugene.
Bowker, G. J.
Bryden, Williamson.
Carlton, F. B.
Clement, A. W.
Curtice, Cooper.
Darling, Andrew.
Duncan, J. T.
Eshleman, John M.
Faust, John
Fox, D. F.
Hadden, Alex.
Heath, A. S.
Hewlett, R. T.
Hutchings, Robert C.
Law, James.
Loveland, A. E.
McWhinne, H.
Mattsen, W. H.
Meikle, John.
Miller, W. B. E.
Monsarrat, W. T.
Morris, Claude D.
Nichbert, J. D.
Parazols, M.
Parker, John M.
Pierce, F. E.
Reefer, Leon N.
Russell, F. L.
Spencer, H. A.
Stiles, Chas. Wardell.
Trumbower, M. R.
Turner, Fred. W.
Turner, T. J.
Van Es, L.
Wattles, J. H.
Waugh, Jas. A.
Wende, John.
Whitehouse, A. W.
Williams, W. L.
Willyoung, S. E.
Wolstenholme, J. B.

ILLUSTRATIONS, VOL. XV.

Fig.		Page.
1.	A Study in Horse-Shoeing	37, 38, 39, 206
2.	Anatomy of Taenia Crassicollis Rud	86, 87, 88, 89
3.	The Emasculating Bot-Fly	203
4.	Anatomy of the Large American Fluke,	226, 227, 229, 231, 233, 236, 237, 239, 300, 304,
5.	The Point system of Judging	350

INDEX VOLUME XV.

A

PAGE

Anatomy of American Fluke, C. W. Stiles.....161, 225, 299
Army Veterinary Bill..... 217
American Veterinary College..... 264
Act to Establish Live Stock Commission, Pennsylvania..... 463
Adami, J. G., M. A., M. D..... 444
Army Legislation, Report of Committee on..... 400
Abnormal results following Dehorning Cattle..... 449
Anatomy of the Large American Fluke..... 407, 457
Age, The Effect of, on the Organs of the Horse..... 438
Anthrax, Value of Prophylactic Treatment..... 440
Abdominal Hernia, successfully treated..... 447

B

Bot-fly—on the emasculating..... 200
Bell, John A., Nails in Feet..... 119
Bowker, G. J., Osteo-Porosis..... 9
Black, D. E., Iatrol as an Antiseptic..... 35
Bryden, Williamson, Horse Shoeing.....36, 206
Quittor..... 43
Tuberculosis..... 207
Bittles, E. E., V. S..... 447
Blood serum Therapeutics..... 418

C

Chronic Bright's Disease, Andrew Darling..... 10
Curtice Cooper, Tuberculin in Practice..... 11
Choking and the Treatment, John Meikle..... 121
Carlton, F. B., Homeopathy..... 179
Communication, Ohio Veterinary College..... 218
Climate, Influence of, W. L. Williams..... 313
Current Literature for Veterinarians.....48, 124
Change of Management..... 269
Chicago Veterinary College..... 262
California State Veterinary Medical Association.....58, 272, 357
Civil Service Examination..... 423
Clement, A. W., V. S..... 455
College Notes..... 476
Constitution and By-laws, U. S. V. M. A..... 396
Comparative Pathology..... 444

D

Darling, Andrew, Chronic Bright's Disease.... 10
Dehorning Cattle, A few Abnormal Results following..... 449
Diseases, Report of Committee on..... 392
Dislocation between the second and third Vertebrae in the Horse 455
Dog in Human Society, Alex Hadden..... .. 17
Duncan, J. T..... 438

E

Editorial—Current Literature for Veterinarians.....48, 124
Army Veterinary Bill..... 217
United States Veterinary Medical Association..... 267
Veterinary Legislation..... 268
Veterinary Education..... 269
Change of Management.... 269
McKillip Veterinary College..... 353
Journal of Comparative Medicine and Veterinary Archives.... ... 472
Roads to Veterinary Education..... 472
Veterinary Education, Roads to..... 472
Blood Serum Therapeutics..... 418
Embargo on American Cattle..... 418
Tuberculosis..... 419
How might we best spend the Winter Sessions of our Association?. 420
Effect of Age on the Organs of the Horse..... 438
Eshleman, John M., Haemoglobinuria..... 115
Complicated Wound of Leg..... 122
Equine Ovariotomy, Jas. A. Waugh..... 195
Erie County Veterinary Medical Society..... 279

F

Fluke, Anatomy of American..... .....161, 225, 299
Fasciola Magna, C. W. Stiles..... 161
Fox, D. F., Liver Diseases..... 340
Faust, John, V. S..... 440

G

German Veterinary Medical Association.....134, 271
Graduates 1894 :
Ontario Veterinary College..... 254
Kansas City Veterinary College..... 259
Ohio Veterinary College..... 260
New York College of Veterinary Surgeons..... 261
Chicago Veterinary College..... 262
American Veterinary College..... 264

H

Hadden, Alex., The Dog in Human Society..... 17
Horse-shoeing, A Study in, W. Bryden.... .....36, 206
Haemoglobinuria, J. M. Eshleman..... 115
Hutchings, Robert C., Obituary. 123

Homeopathy, F. B. Carlton 179
Heath, A. S., Tuberculosis..... 204
Hewlett, R. T., Tetanus..... 209
Harger, S. J. J., Neurectomy as a Practical Operation..... 365
Hypodermic Injections, Treatment of Ossifiic Disease of the Joints by..... 450

I

Influenza, W. B. E. Miller 28
Iatrol as an Antiseptic, D. E. Black..... 35
Intelligence and Education, Report of Committee on 382
Incorporation, Report of Committee on..... 398

J

Judging, Point System of..... 348

K

Kangaroos, Notes on, A. W. Whitehouse..... 187
Kansas City Veterinary College..... 259
Keystone Veterinary Medical Association 56, 134, 436

L

Leg, Complicated Wound of, J. M. Eshleman 122
Loveland, A. E., Taenia Crassicollis Rud..... 67
Law, James, Unsuspected Poisoning 101
Liver, Diseases of, D. F. Fox..... 340

Mc

McWhinne, H., Carbuncle..... 244
McKillip Veterinary College 353

M

Miller, W. B. E., Influenza 28
Mattsen, W. H., Osteo Porosis..... 41
Tubercular Meningitis..... 47
Morris, Claude D., Professional Etiuquette..... 109
Meikle, John, Belladonna in Choking..... 121
Monsarrat, W. T., Prolonged Pregnancy 216
Maine Veterinary Medical Association. 355
Maryland State Veterinary Medical Association..... 359
Montreal Veterinary Medical Association..... 57
Massachusetts Veterinary Association.....128, 276
Massachusetts, Tuberculosis..... 466, 469
Manitoba Veterinary Association 471
Missouri Veterinary Medical Association..... 435

N

New York College of Veterinary Surgeons..... 261
Nails in Feet, John A. Bell..... 119
New Remedies in Veterinary Medicine, F. W. Turner.....
Neurectomy as a Practical Operation..... 365

Nomenclature, Report of Committee on... 402
New Jersey, Veterinary Medical Association of 436
Nichbert, Dr. J. D 449

O

Ohio Veterinary College..... 260
Ontario Veterinary College..... 254
Ontario Veterinary Association... .... 65, 159
Ovariotomy, S. E. Willyoung.... 197
Osteo-Porosis, G. J. Bowker..... 9
Osteo-Porosis, W. H. Mattsen 41
Obituary, Robert C. Hutchings..... 123
Obituary, John S. Saunders... 292
Ossific Disease of the Joints, Treatment of, by Hypodermic Injections..... 450
Ontario Veterinary College..... 483
Obituary..... 484

P

Purpura Hemorrhagica, H. A. Spencer... 245
Parker, John M., Tuberculosis..... 182
Parazols, M., Stagges..... 40
Pierce, F. E., Parturient Apoplexy. 248
Point System of Judging..... 348
Professional Etiquette, C. D. Morris 109
Pyo-Septhamie in Foals, John Wende 116
Prolonged Pregnancy, W. T. Monsarrat..... 216
Publication Committee..... 391
Pennsylvania, Act to Establish Live Stock Commission..... 463

Q

Quittor, W. Bryden..... 43

R

Reefer, Leon N., Ruptured Bladder... 27
Ruptured Bladder, Leon N. Reefer.... 27
Regulations, Massachusetts..... 469
Report of Committee on Intelligence and Education..... 382
" Publication Committee..... 391
" Committee on Diseases 392
" " " Revision of Constitution and By-Laws... 396
" " " Incorporation 398
" " " Army Legislation..... 401
" " " Nomenclature 402
" Secretary..... 404
Russell, F. L., V. S..... 453

S

Staggers, Treatment of, M. Parazols..... 40
Stiles, Charles Wardell, Anatomy of American Fluke..... ... .. 161, 225, 299

Spencer, H. A., Purpura Hemorrhagica..... 245
Secretary's Report U. S. V. M. A..... 404
Stiles, Chas. Wardell, Ph. D 407, 457
Society Proceedings:
Erie County Veterinary Medical Society..... 279
Maine Veterinary Medical Association..... 355
Maryland State Veterinary Medical Association..... 359
Veterinary Medical Association of New Jersey..... 55
Keystone Veterinary Medical Association.....56, 134, 436
Montreal Veterinary Medical Association..... 57
California State Veterinary Medical Association.....58, 272, 357
Ontario Veterinary Association.....65, 159
New York Veterinary Societies..... 127
Pennsylvania State Veterinary Medical Association.....127, 280
Massachusetts Veterinary Association.....128, 276
German Veterinary Medical Association, New York City.....134, 271
New York State Veterinary Medical Society..... 136
United States Veterinary Medical Association.....154, 292
Veterinary Medical Association of New York County.....155, 221, 250
North Dakota Medical Association..... 157
Veterinary Medical Association of Oneida County..... 222
Ohio State Veterinary Medical Association..... 223
Iowa State Veterinary Medical Association..... 485
Keystone Veterinary Medical Association..... 488
Illinois State Veterinary Medical Association..... 489
Society for the Study of Comparative Psychology 490
United States Veterinary Medical Association, 31st Annual Meeting, 424
Missouri State Veterinary Medical Association..... 435
United States Veterinary Medical Association, Reports of Committees.....382, 391, 392, 396, 398, 400, 402

T

Tetanus R. T. Hewlett 209
Turner, F. W., New Remedies in Veterinary Medicine..... 1
Tuberculin in Practice, Cooper Curtice 11
Tubercular Meningitis, W. H. Mattsen..... 47
Taenia Crassicollis Rud, A. E. Loveland..... 67
Tuberculosis, J. M. Parker 182
A. S. Heath..... 204
W. Bryden 207
Trumbower, M. R., Tuberculosis..... 335
Tuberculosis, Pennsylvania 463
Tuberculosis, Massachusetts.....466, 469
Tuberculosis..... 453
Tuberculosis.....419, 453

U

Unsuspected Poisoning by Sterilized Meat, James Law 101
United States Veterinary Medical Association.....154, 267, 293

V

Van Es, L., Veterinary Opthalmology..... 90
Vomition. J. B. Wolstenholme..... 214
Veterinary Legislation..... 268
Veterinary Education..... 266
Veterinary Medical Association of New Jersey..... 55
Veterinary Association of Manitoba..... 471
Veterinary News..... 475
Value of Prophylactic Treatment in Anthrax..... 440
Veterinary Medical Association of New Jersey..... 436

W

Wende, John, Pyo-Septhamie..... 116
Whitehouse, A. W., Notes on Kangaroos..... 187
Waugh, Jas. A., Equine Ovariotomy..... 195
Willyoung, S. E., Ovariotomy..... 197
Wolstenholme, J. B., Vomition..... 214
Williams, W. L., Influence of Climate..... 313
Walley, Prof. Thomas, Obituary..... 484
Wattles, Junius H., D. V. S..... 450
Winter Sessions of Our Association..... 420

CITY OFFICE OF

SPELTERINE COMPANY

181 PEARL STREET.

SPELTERINE HOOF STUFFING.

This remarkable Hoof Stuffing has been thoroughly tested by Veterinary Surgeons and horsemen, with the best of results. It is cooling, makes an excellent poultice and water boot. It sticks well in the hoof, and when taken out leaves it in a clean condition. It will not sour and is a perfect remedy for horses with founder, corns, dry and contracted hoofs, and is far superior and cheaper than oil and linseed meal or any other stuffing.

DIRECTIONS FOR USE.

Fill in the sole of hoof, working it well into frog and under the shoe. If the stuffing becomes dry or too stiff by evaporation, add a little water and stir.

READ THESE OPINIONS OF WELL-KNOWN VETERINARIANS.

DR. R. S. HUIDEKOPER, M.D., Veterinarian and Editor of the JOURNAL OF COMPARATIVE MEDICINE, says: "I have used your Hoof Stuffing for some time and find it a clean, satisfactory material for softening the feet. It does not ferment like flaxseed, washes out well and does not seem to dry the hoof afterwards."

DR. EDWARD C. ROSS, Veterinary Surgeon, 278 Elm Street, New Haven, Conn., writes: "I should like to try it more fully. Will you send me a package?" Three weeks later he writes, "I like it very much."

DR. T. G. SHERWOOD, M.R.C.V.S., of 854 7th Avenue, N. Y., the Veterinarian and Dog Expert, writes: "I like your Hoof Stuffing for Horses' Hoofs. It is cooling and healing. I am also using your Powder and Ointment in my dog practice for eczema and other skin diseases."

DR. HERBERT NEHER, Veterinarian of the Broadway & 7th Ave. R. R. Co.: "There is no question in my mind but what your Hoof Stuffing is a fine thing for poulticing in Laminitis, Ankles, etc., and I recommend it to the profession as worthy of a trial."

DR. THOMAS GIFFEN, M.R.C.V.S., says: "I have used your Spelterine Powder, Ointment and Hoof Stuffing, and can with confidence recommend them. The Hoof Stuffing is far superior to any I have ever used."

DR. S. K. JOHNSON, who is Chief Veterinarian to the Health Department of New York City, and at New York Veterinary Hospital, says: "I have used your Hoof Stuffing in our Hospital Dep't, and found same serviceable in all diseases of the foot where a dressing is required to impart moisture and relieve fever. I would cheerfully recommend same."

J. SCOTT McCOY, Superintendent of Forbes' Farm, Canton, Mass. Ponkapog P. O., Readville, Mass. HOME OF NANCY HANKS AND ARION!! "We have used the Spelterine Hoof Packing on the Horses this Spring and have never had their feet in better condition before, and can recommend it to horsemen as being a first-class article." Mr. McCoy is superintendent or trainer for Mr. J. Malcolm Forbes' Farm, the home of Arion, the "Fastest Electioneer Colt"—$150,000— and Nancy Hanks. Mr. Forbes is also famous as the associate of Gen. Paine with the American cup winners—Puritan, Mayflower, Volunteer!

ROBERT BONNER says: "I have used your Hoof Stuffing and found it to be an excellent article for keeping the feet moist and from becoming too hard."

Z. C. POSEY, Superintendent of Stables for World's Fair, Chicago, Ill.: "I have used your Hoof Stuffing; it is both cooling and healing, and is the best thing out."

THE METROPOLITAN CAB CO., 39 to 45 W. Adam St., Chicago, Ill.: "We consider the Hoof Stuffing the best known, and cheerfully give it our endorsement, and recommend it to all horsemen."

USE SPELTERINE POWDER, for Galls, Thrush and Fresh Cuts.

USE SPELTERINE OINTMENT, for Greasy Heels, Scratches and Old Sores.

Price of Hoof Stuffing, ready for use, 100 lbs., $4; 50 lb. pails, $2.50; 25 lb. pails, $1.50.

Price of Spelterine Powder or Ointment, per lb., $1.20; small packages, 30c.

Samples free at office, or on receipt of 10 cents in stamps if to be sent by mail.

SPELTERINE COMPANY,

Main Office, 181 Pearl St. **(Corner of Cedar.)**

MENTION THIS PUBLICATION. NEW YORK.

Scientific and Business Platform

We respectfully invite the attention of physicians and pharmacists to a brief statement of the ethical, scientific and business principles upon which we strive to base our operations as manufacturing chemists. We shall be pleased to communicate with any member of either profession who may desire further literature in amplification of any or all of these principles, and cordially invite such correspondence.

We hold that the manufacturing pharmacist who desires the patronage and values the respect of the physician, should study and conform to those principles of medical ethics which affect the production and marketing of medicinal preparations, therefore :

A. We strive to maintain the highest standard of quality.

Our facilities for securing crude drugs of first quality are unequalled ; our processes of manufacture are the latest and best approved ; and the highest degree of skill is employed at every stage. Wherever the nature of the drug will permit, the strength of every preparation is determined by repeated assays, from the acceptance of the crude material to the finishing of the product for the pharmacist's shelves. Under other conditions the product is made to conform to some physiological or other recognized test to ascertain its therapeutic efficiency.

B. We do not market any preparation protected by copyright, patent or trade-mark, or by concealed or misrepresented formula.

Please apply to us for literature fully explaining the distinction between these several classes of proprietary preparations, and demonstrating their respective objectionable features.

C. We do not so label or advertise our products as to encourage, or admit of, their use by the public without the advice of the physician.

Any physician who has seen a former patient purchase for himself, and without a doctor's advice, a remedy labelled with the disease which it is designed to cure or alleviate, with full directions as to dose, etc., and which he himself had prescribed on a previous occasion, will appreciate the bearing of this principle upon his purse and reputation.

D. To the end that the product, and the art of its manufacture, may never become lost to science, every medical preparation should have a proper name, open to general scientific usage, and its formula should be published in scientific literature in such a manner that any competent pharmacist may readily prepare it.

Many articles claiming to be pharmaceuticals cannot be admitted to the Pharmacopœia, or accepted in scientific literature, for the reason that the names are claimed as private property, and their formulæ, or art of manufacture, are nowhere published, but are things of trade secrecy. Our processes and formulæ are open to the inspection of all properly interested persons at any seasonable time, and any pharmacist may market any of our preparations under its proper name, if only the same be not represented as of our manufacture.

E. We hold further that the manufacturing chemist should lend his superior resources to the advancement of both medical and pharmaceutical science; that he ought not to act altogether from a selfish pecuniary motive, but should have in view the general well-being of humanity and, as tending to this end, the continued progress of medicine and pharmacy.

In pursuance of this belief, we have expended large sums in therapeutic, physiological and chemical research; employed able botanists in exploring the habitats and studying the characteristics of new drugs; promoted exhaustive physiological experiments to determine their therapeutic value; made expensive tests in our laboratory to determine the most available form of preparation; and have then placed, free of cost, at the disposal of the medical profession, samples of the same for clinical experimentation, until the medicinal value was ascertained. Where no therapeutic worth was found, the drug has been relegated to deserved oblivion; yet as the outcome of our individual efforts, the medical profession now has such valued remedies as: Cascara sagrada, Grindelia robusta, Jaborandi, Coca, Jamaica dogwood, Black haw, Berberis aquifolium, Cheken, Pichi, and others.

Basing our claims to the consideration of the physician and pharmacist upon the foregoing statements, an investigation of the truth of which we earnestly solicit, we remain, Yours very truly,

PARKE, DAVIS & COMPANY.